**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 3
AMENDED REPORT ☐

## APPLICATION FOR PERMIT TO DRILL

**1. WELL NAME and NUMBER**
NBU 1022-2O4BS

**2. TYPE OF WORK**
DRILL NEW WELL ● REENTER P&A WELL ○ DEEPEN WELL ○

**3. FIELD OR WILDCAT**
NATURAL BUTTES

**4. TYPE OF WELL**
Gas Well Coalbed Methane Well: NO

**5. UNIT or COMMUNITIZATION AGREEMENT NAME**
NATURAL BUTTES

**6. NAME OF OPERATOR**
KERR-MCGEE OIL & GAS ONSHORE, L.P.

**7. OPERATOR PHONE**
720 929-6515

**8. ADDRESS OF OPERATOR**
P.O. Box 173779, Denver, CO, 80217

**9. OPERATOR E-MAIL**
julie.jacobson@anadarko.com

**10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)**
ST UT ML 22651

**11. MINERAL OWNERSHIP**
FEDERAL ○ INDIAN ○ STATE ● FEE ○

**12. SURFACE OWNERSHIP**
FEDERAL ○ INDIAN ○ STATE ● FEE ○

**13. NAME OF SURFACE OWNER (if box 12 = 'fee')**

**14. SURFACE OWNER PHONE (if box 12 = 'fee')**

**15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')**

**16. SURFACE OWNER E-MAIL (if box 12 = 'fee')**

**17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')**

**18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS**
YES ● (Submit Commingling Application) NO ○

**19. SLANT**
VERTICAL ○ DIRECTIONAL ● HORIZONTAL ○

| 20. LOCATION OF WELL | FOOTAGES | QTR-QTR | SECTION | TOWNSHIP | RANGE | MERIDIAN |
|---|---|---|---|---|---|---|
| LOCATION AT SURFACE | 221 FSL 1392 FEL | SWSE | 2 | 10.0 S | 22.0 E | S |
| Top of Uppermost Producing Zone | 415 FSL 1807 FEL | SWSE | 2 | 10.0 S | 22.0 E | S |
| At Total Depth | 415 FSL 1807 FEL | SWSE | 2 | 10.0 S | 22.0 E | S |

**21. COUNTY**
UINTAH

**22. DISTANCE TO NEAREST LEASE LINE (Feet)**
415

**23. NUMBER OF ACRES IN DRILLING UNIT**
620

**25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)**
644

**26. PROPOSED DEPTH**
MD: 8599 TVD: 8555

**27. ELEVATION - GROUND LEVEL**
5098

**28. BOND NUMBER**
22013542

**29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE**
43-8496

### Hole, Casing, and Cement Information

| String | Hole Size | Casing Size | Length | Weight | Grade & Thread | Max Mud Wt. | Cement | Sacks | Yield | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| Surf | 11 | 8.625 | 0 - 2170 | 28.0 | J-55 LT&C | 0.2 | Type V | 180 | 1.15 | 15.8 |
| | | | | | | | Class G | 270 | 1.15 | 15.8 |
| Prod | 7.875 | 4.5 | 0 - 8599 | 11.6 | I-80 LT&C | 12.5 | Premium Lite High Strength | 270 | 3.38 | 11.0 |
| | | | | | | | 50/50 Poz | 1170 | 1.31 | 14.3 |

### ATTACHMENTS

**VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES**

- ☑ WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER
- ☑ COMPLETE DRILLING PLAN
- ☐ AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)
- ☐ FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER
- ☑ DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)
- ☑ TOPOGRAPHICAL MAP

**NAME** Gina Becker | **TITLE** Regulatory Analyst II | **PHONE** 720 929-6086

**SIGNATURE** | **DATE** 08/10/2011 | **EMAIL** gina.becker@anadarko.com

**API NUMBER ASSIGNED**
43047518490000

**APPROVAL**

Permit Manager

**RECEIVED: October 27, 2011**

# Kerr-McGee Oil & Gas Onshore. L.P.

**NBU 1022-2O4BS**

Surface: 221 FSL / 1392 FEL SWSE
BHL: 415 FSL / 1807 FEL SWSE

Section 2 T10S R22E

Uintah County, Utah
Mineral Lease: ST UT ML 22651

**ONSHORE ORDER NO. 1**

**DRILLING PROGRAM**

**1. & 2.** **Estimated Tops of Important Geologic Markers:**
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

| Formation | Depth | Resource |
|---|---|---|
| Uinta | 0 - Surface | |
| Green River | 1052 | |
| Birds Nest | 1349 | Water |
| Mahogany | 1722 | Water |
| Wasatch | 4141 | Gas |
| Mesaverde | 6333 | Gas |
| MVU2 | 7333 | Gas |
| MVL1 | 7930 | Gas |
| TVD | 8555 | |
| TD | 8599 | |

**3.** **Pressure Control Equipment** (Schematic Attached)

*Please refer to the attached Drilling Program*

**4.** **Proposed Casing & Cementing Program:**

*Please refer to the attached Drilling Program*

**5.** **Drilling Fluids Program:**

*Please refer to the attached Drilling Program*

**6.** **Evaluation Program:**

*Please refer to the attached Drilling Program*



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**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8555' TVD, approximately equals 5,475 psi (0.64 psi/ft = actual bottomhole gradient)

Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,581 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

*Drilling is planned to commence immediately upon approval of this application.*

**9. Variances:**

*Please refer to the attached Drilling Program.*
*Onshore Order #2 – Air Drilling Variance*

*Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2*

- *Blowout Prevention Equipment (BOPE) requirements;*
- *Mud program requirements; and*
- *Special drilling operation (surface equipment placement) requirements associated with air drilling.*

*This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.*

*The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.*

*More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.*

***Background***

*In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.*



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*Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.*

*The air rig is then mobilized to drill the surface casing hole by drilling a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.*

*KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.*

*Variance for BOPE Requirements*
*The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.*

***Variance for Mud Material Requirements***
*Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.*

***Variance for Special Drilling Operation (surface equipment placement) Requirements***
*Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.*

*Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.*

*Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and*



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*on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.*

*Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.*

***Conclusion***

*The air rig operating procedures and the attached air rig layout have effectively maintained well control* while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

*Please refer to the attached Drilling Program.*



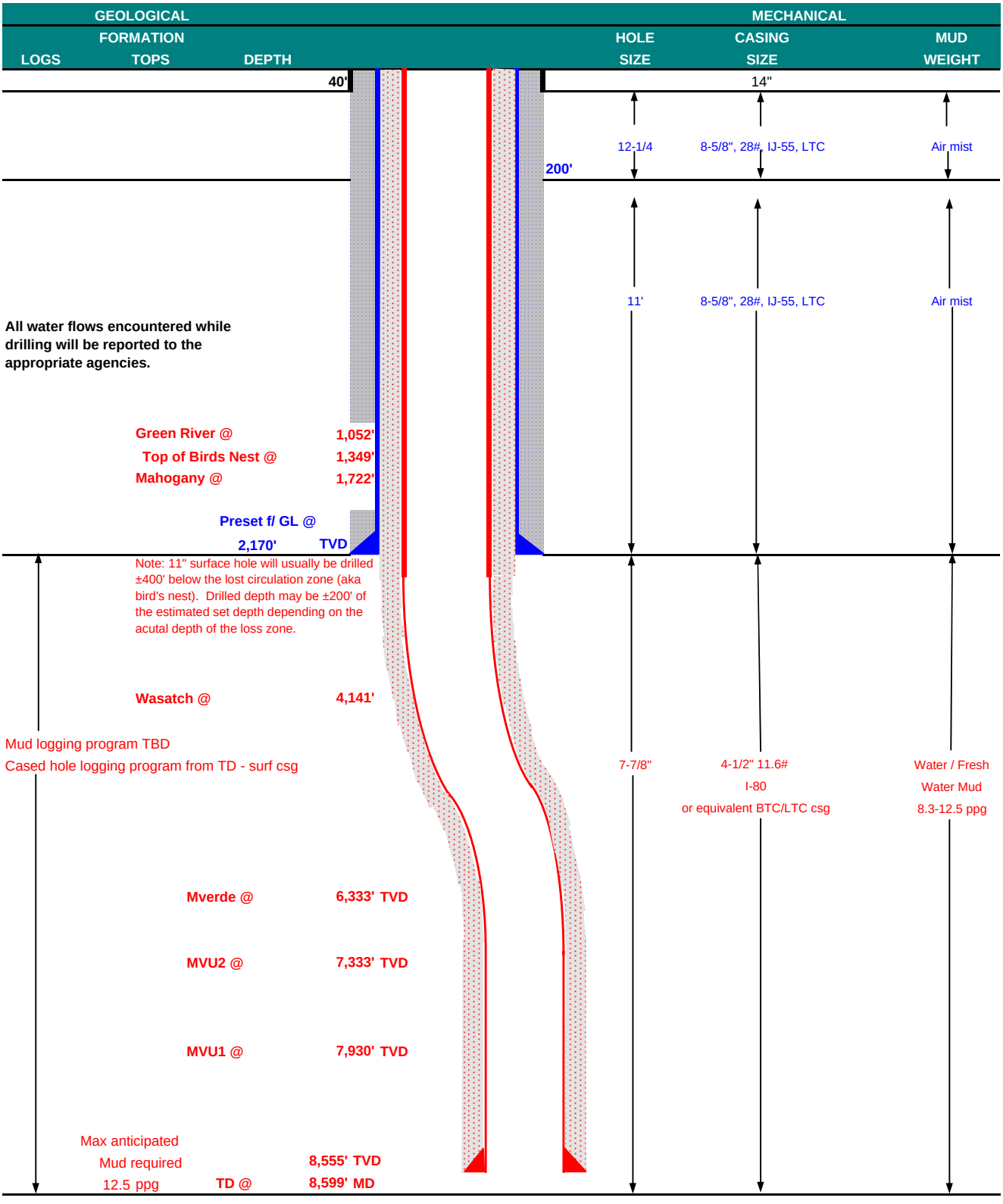
**RECEIVED: August 10, 2011**

API Well Number: 43047518490000

# KERR-McGEE OIL & GAS ONSHORE LP

## DRILLING PROGRAM

| | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | | DATE | August 9, 2011 | |
| WELL NAME | **NBU 1022-2O4BS** | | TD | 8,555' TVD | 8,599' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah | FINISHED ELEVATION | 5097.9 |
| SURFACE LOCATION | SWSE 221 FSL | 1392 FEL | Sec 2 | T 10S | R 22E |
| | Latitude: 39.971337 | Longitude: -109.401960 | | | NAD 27 |
| BTM HOLE LOCATION | SWSE 415 FSL | 1807 FEL | Sec 2 | T 10S | R 22E |
| | Latitude: 39.971871 | Longitude: -109.403439 | | | NAD 27 |
| OBJECTIVE ZONE(S) | Wasatch/Mesaverde | | | | |
| ADDITIONAL INFO | Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept. | | | | |



# KERR-McGEE OIL & GAS ONSHORE LP

DRILLING PROGRAM

**CASING PROGRAM**

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | LTC | BTC TENSION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,170 | 28.00 | IJ-55 | LTC | 2.49 | 1.85 | 6.54 | N/A |
| | | | | | | | | 7,780 | 6,350 | 279,000 | 367,000 |
| PRODUCTION | 4-1/2" | 0 | to | 8,599 | 11.60 | I-80 | LTC/BTC | 1.11 | 1.14 | 3.46 | 4.55 |
| | | | | | | | | | | | |

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**CEMENT PROGRAM**

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | YIELD |
|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | |
| SURFACE | | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | |
| **Option 2** | LEAD | 1,670' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 160 | 35% | 11.00 | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | 1.15 |
| | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | 1.15 |
| PRODUCTION | LEAD | 3,639' | Premium Lite II +0.25 pps | 270 | 20% | 11.00 | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | |
| | | | + 0.5% extender | | | | |
| | TAIL | 4,960' | 50/50 Poz/G + 10% salt + 2% gel | 1,170 | 35% | 14.30 | 1.31 |
| | | | + 0.1% R-3 | | | | |

*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

**FLOAT EQUIPMENT & CENTRALIZERS**

| | |
|---|---|
| SURFACE | Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe |
| PRODUCTION | Float shoe, 1 jt, float collar. No centralizers will be used. |

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

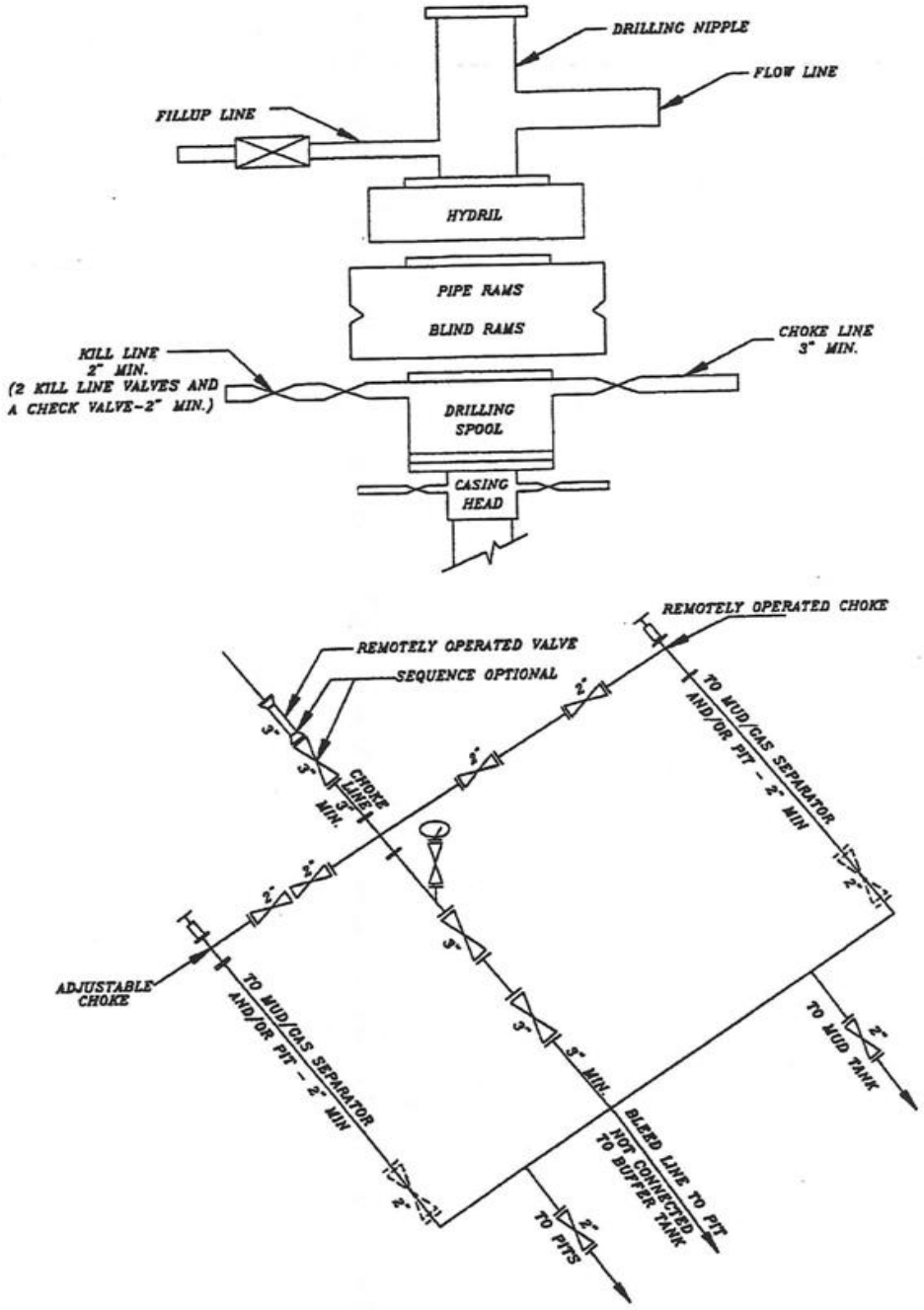
**DRILLING ENGINEER:** _____ **DATE:** _____

Nick Spence / Danny Showers

**DRILLING SUPERINTENDENT:** _____ **DATE:** _____

Kenny Gathings / Lovel Young

**EXHIBIT A**
**NBU 1022-2O4BS**




**SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK**

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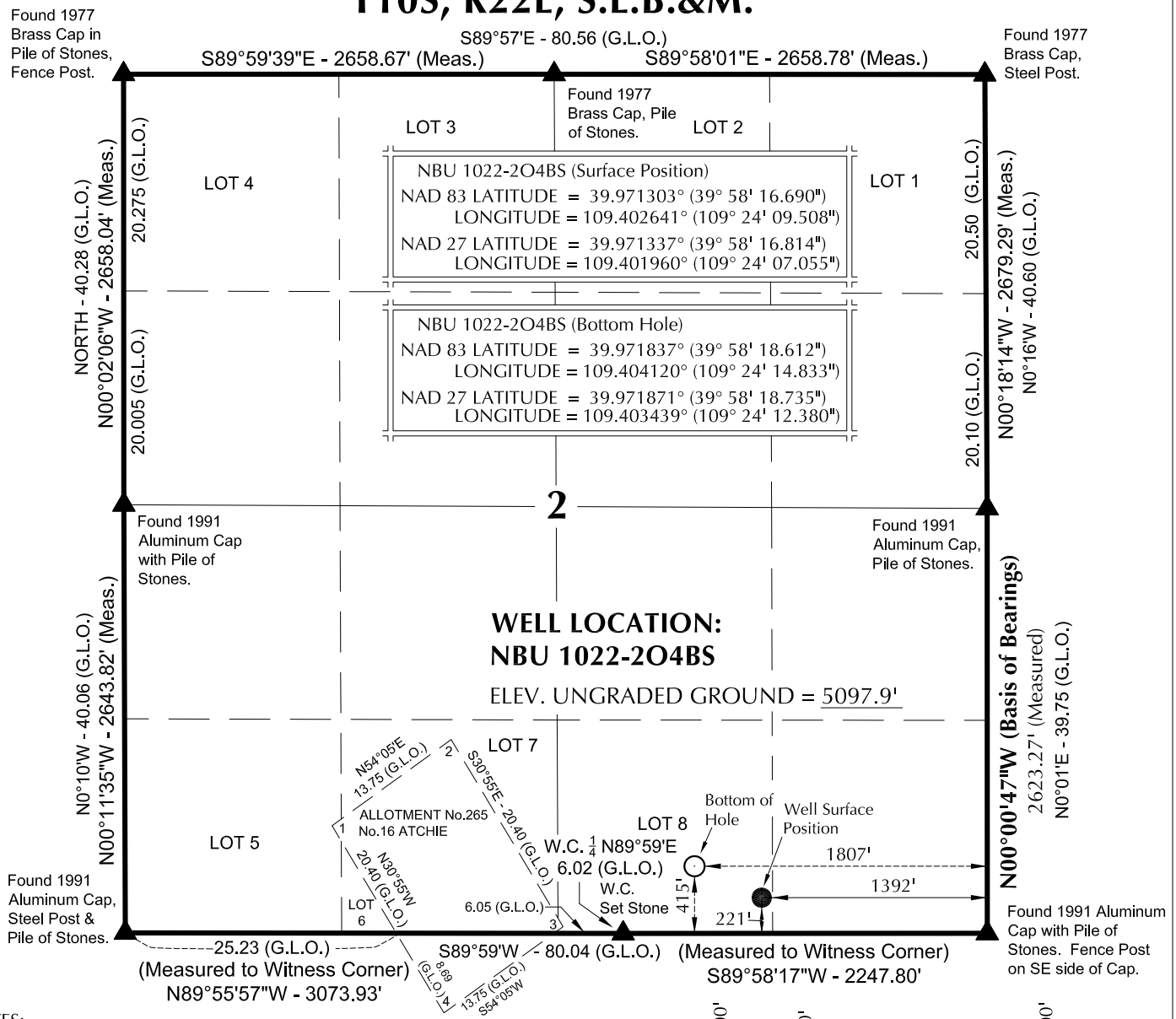
API Well Number: 43047518490000

# T10S, R22E, S.L.B.&M.




NOTES:

▲ = Section Corners Located

1. Well footages are measured at right angles to the Section Lines.
2. G.L.O. distances are shown in feet or chains. 1 chain = 66 feet.
3. The Bottom of hole bears N64°54'56"W 458.03' from the Surface Position.
4. Bearings are based on Global Positioning Satellite observations.
5. Basis of elevation is Tri-Sta "Two Water" located in the NW 1/4 of Section 1, T10S, R21E, S.L.B.&M. The elevation of this Tri-Sta is shown on the Big Pack Mtn NE 7.5 Min. Quadrangle as being 5238'.

1000' 500' 0' 1000'

SCALE

N

## SURVEYOR'S CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

PROFESSIONAL LAND SURVEYOR No.6028691 JOHN R LAUGHLIN STATE OF UTAH

PROFESSIONAL LAND SURVEYOR
REGISTRATION No. 6028691
STATE OF UTAH
2-25-11

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

**WELL PAD: NBU 1022-2P**

**NBU 1022-2O4BS**
**WELL PLAT**
**415' FSL, 1807' FEL (Bottom Hole)**
**LOT 8 OF SECTION 2, T10S, R22E,**
**S.L.B.&M., UINTAH COUNTY, UTAH.**

609 CONSULTING, LLC
2155 North Main Street
Sheridan WY 82801
Phone 307-674-0609
Fax 307-674-0182

**TIMBERLINE** (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

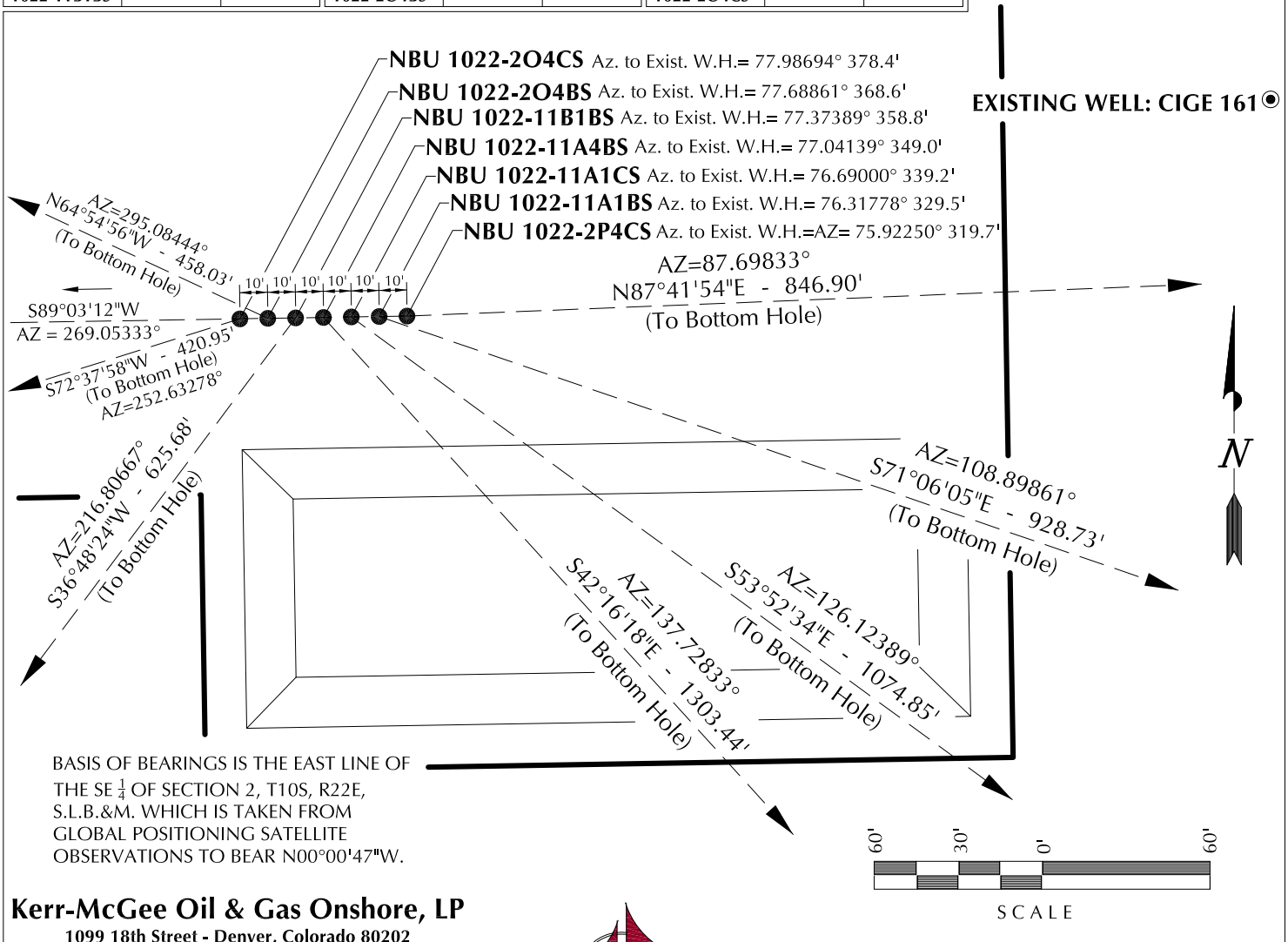
| | | |
|---|---|---|
| DATE SURVEYED: 01-06-11 | SURVEYED BY: R.Y. | SHEET NO: 6 |
| DATE DRAWN: 01-24-11 | DRAWN BY: M.W.W. | 6 OF 19 |
| SCALE: 1" = 1000' | Date Last Revised: | |

**RECEIVED: August 10, 2011**

| WELL NAME | SURFACE POSITION | | | | | BOTTOM HOLE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NAD83 | | NAD27 | | | NAD83 | | NAD27 | | |
| | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES |
| NBU 1022-2P4CS | 39°58'16.698"<br>39.971305° | 109°24'08.866"<br>109.402463° | 39°58'16.822"<br>39.971339° | 109°24'06.413"<br>109.401781° | 221' FSL<br>1342' FEL | 39°58'17.028"<br>39.971397° | 109°23'57.999"<br>109.399444° | 39°58'17.152"<br>39.971431° | 109°23'55.547"<br>109.398763° | 255' FSL<br>496' FEL |
| NBU 1022-11A1BS | 39°58'16.697"<br>39.971305° | 109°24'08.994"<br>109.402498° | 39°58'16.820"<br>39.971339° | 109°24'06.542"<br>109.401817° | 221' FSL<br>1352' FEL | 39°58'13.718"<br>39.970477° | 109°23'57.714"<br>109.399365° | 39°58'13.842"<br>39.970512° | 109°23'55.262"<br>109.398684° | 80' FNL<br>473' FEL |
| NBU 1022-11A1CS | 39°58'16.695"<br>39.971304° | 109°24'09.122"<br>109.402534° | 39°58'16.819"<br>39.971338° | 109°24'06.670"<br>109.401853° | 221' FSL<br>1362' FEL | 39°58'10.428"<br>39.969563° | 109°23'57.980"<br>109.399439° | 39°58'10.552"<br>39.969598° | 109°23'55.528"<br>109.398758° | 413' FNL<br>491' FEL |
| NBU 1022-11A4BS | 39°58'16.693"<br>39.971304° | 109°24'09.251"<br>109.402570° | 39°58'16.817"<br>39.971338° | 109°24'06.798"<br>109.401888° | 221' FSL<br>1372' FEL | 39°58'07.158"<br>39.968655° | 109°23'58.001"<br>109.399445° | 39°58'07.282"<br>39.968689° | 109°23'55.550"<br>109.398764° | 744' FNL<br>490' FEL |
| NBU 1022-11B1BS | 39°58'16.692"<br>39.971303° | 109°24'09.379"<br>109.402605° | 39°58'16.815"<br>39.971338° | 109°24'06.927"<br>109.401924° | 221' FSL<br>1382' FEL | 39°58'11.745"<br>39.969929° | 109°24'14.197"<br>109.403944° | 39°58'11.868"<br>39.969963° | 109°24'11.744"<br>109.403262° | 280' FNL<br>1755' FEL |
| NBU 1022-2O4BS | 39°58'16.690"<br>39.971303° | 109°24'09.508"<br>109.402641° | 39°58'16.814"<br>39.971337° | 109°24'07.055"<br>109.401960° | 221' FSL<br>1392' FEL | 39°58'18.612"<br>39.971837° | 109°24'14.833"<br>109.404120° | 39°58'18.735"<br>39.971871° | 109°24'12.380"<br>109.403439° | 415' FSL<br>1807' FEL |
| NBU 1022-2O4CS | 39°58'16.689"<br>39.971302° | 109°24'09.636"<br>109.402677° | 39°58'16.812"<br>39.971337° | 109°24'07.184"<br>109.401995° | 220' FSL<br>1402' FEL | 39°58'15.450"<br>39.970958° | 109°24'14.796"<br>109.404110° | 39°58'15.574"<br>39.970993° | 109°24'12.343"<br>109.403429° | 95' FSL<br>1804' FEL |
| CIGE 161 | 39°58'17.464"<br>39.971518° | 109°24'04.883"<br>109.401356° | 39°58'17.588"<br>39.971552° | 109°24'02.431"<br>109.400675° | 299' FSL<br>1032' FEL | | | | | |

**RELATIVE COORDINATES** - From Surface Position to Bottom Hole

| WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NBU 1022-2P4CS | 34.0' | 846.2' | NBU 1022-11A1BS | -300.8' | 878.7' | NBU 1022-11A1CS | -633.7' | 868.2' | NBU 1022-11A4BS | -964.5' | 876.8' |
| NBU 1022-11B1BS | -501.0' | -374.9' | NBU 1022-2O4BS | 194.2' | -414.8' | NBU 1022-2O4CS | -125.7' | -401.8' | | | |




BASIS OF BEARINGS IS THE EAST LINE OF THE SE $\frac{1}{4}$ OF SECTION 2, T10S, R22E, S.L.B.&M. WHICH IS TAKEN FROM GLOBAL POSITIONING SATELLITE OBSERVATIONS TO BEAR N00°00'47"W.

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

## WELL PAD - NBU 1022-2P

**WELL PAD INTERFERENCE PLAT**
**WELLS - NBU 1022-2P4CS, NBU 1022-11A1BS, NBU 1022-11A1CS, NBU 1022-11A4BS, NBU 1022-11B1BS, NBU 1022-2O4BS & NBU 1022-2O4CS LOCATED IN SECTION 2, T10S, R22E, S.L.B.&M., UINTAH COUNTY, UTAH.**

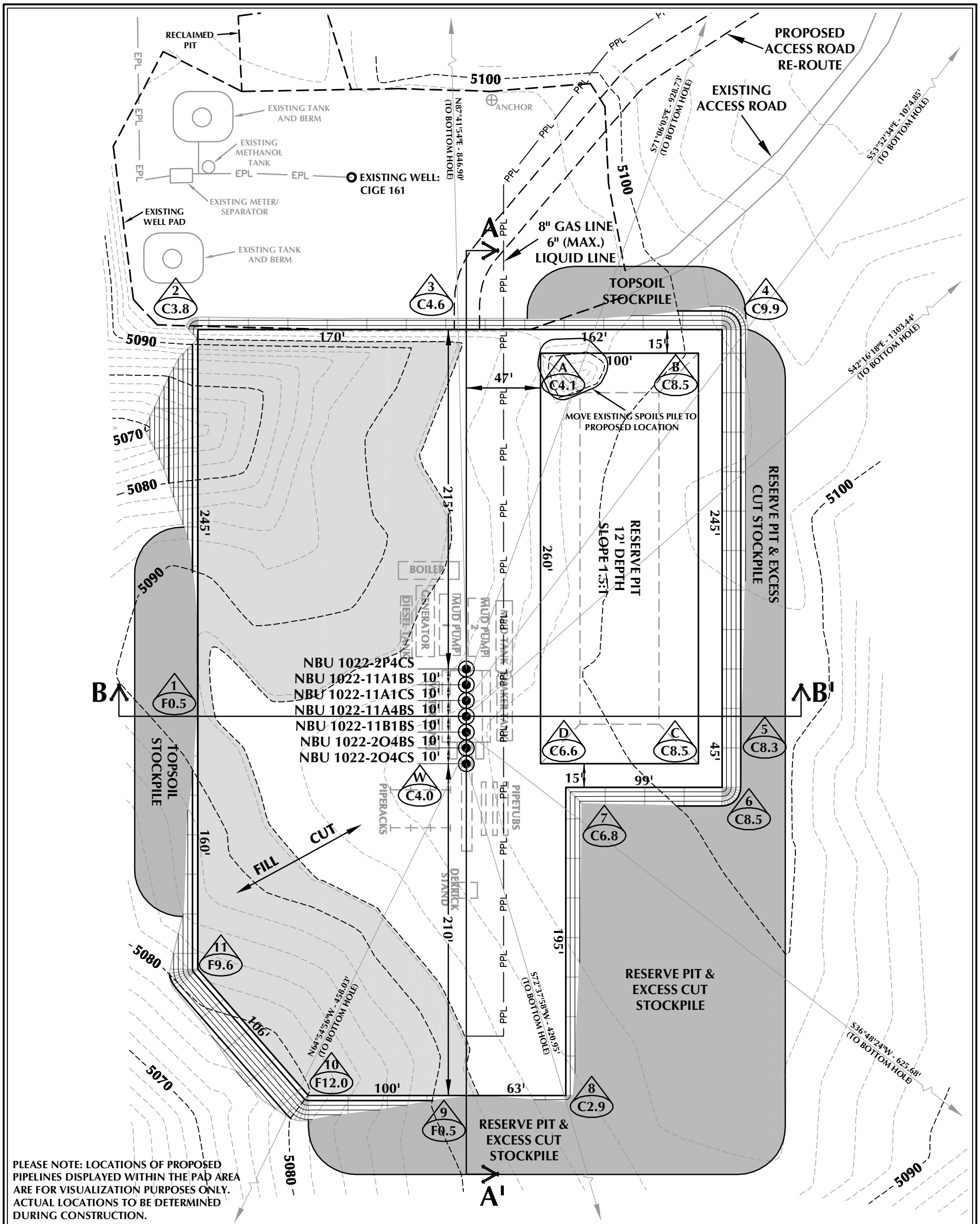
609 CONSULTING, LLC
2155 North Main Street
Sheridan WY 82801
Phone 307-674-0609
Fax 307-674-0182

TIMBERLINE (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

| | | |
|---|---|---|
| DATE SURVEYED: 01-06-11 | SURVEYED BY: R.Y. | SHEET NO: 8 |
| DATE DRAWN: 01-24-11 | DRAWN BY: M.W.W. | 8 OF 19 |
| SCALE: 1" = 60' | Date Last Revised: | |

RECEIVED: August 10, 2011

API Well Number: 43047518490000




## WELL PAD - NBU 1022-2P DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 5096.2'
FINISHED GRADE ELEVATION = 5092.2'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1
TOTAL WELL PAD AREA = 3.58 ACRES
TOTAL DISTURBANCE AREA = 6.30 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00

**WELL PAD QUANTITIES**

TOTAL CUT FOR WELL PAD = 14,772 C.Y.
TOTAL FILL FOR WELL PAD = 12,060 C.Y.
TOPSOIL @ 6" DEPTH = 2,863 C.Y.
EXCESS MATERIAL = 2,712 C.Y.

**RESERVE PIT QUANTITIES**

TOTAL CUT FOR RESERVE PIT
+/- 8,870 C.Y.
RESERVE PIT CAPACITY (2' OF FREEBOARD)
+/- 33,770 BARRELS

**WELL PAD LEGEND**

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED BOTTOM HOLE LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)
- PPL — PROPOSED PIPELINE
- EPL — EXISTING PIPELINE

HORIZONTAL 0 30' 60' 1" = 60'
2' CONTOURS

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

WELL PAD - NBU 1022-2P

WELL PAD - LOCATION LAYOUT
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

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2155 North Main Street
Sheridan, WY 82801
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Fax 307-674-0182

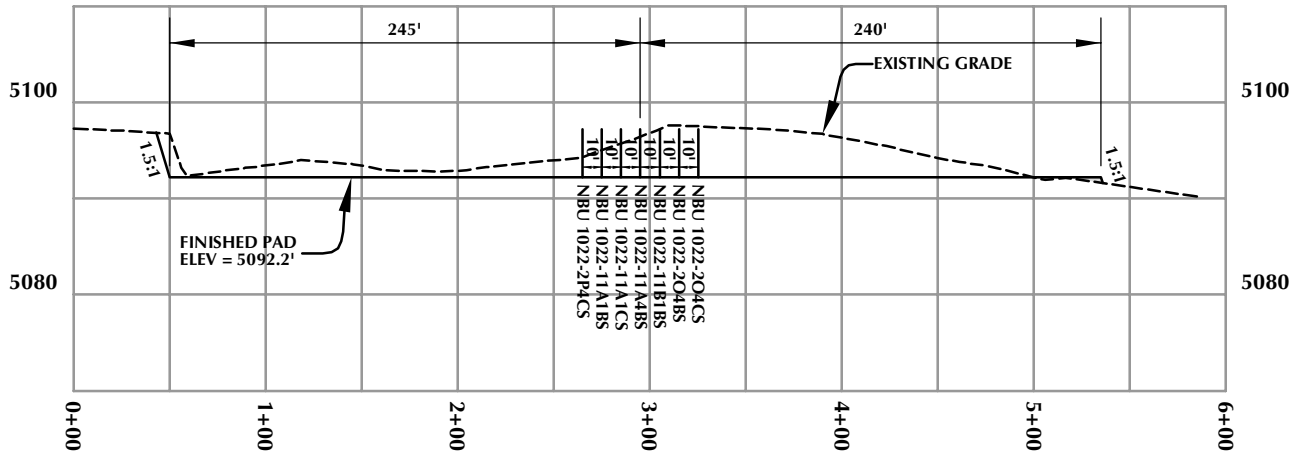
TIMBERLINE (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

SCALE: 1"=60' | DATE: 3/30/11 | SHEET NO: 9 | 9 OF 19
REVISED:

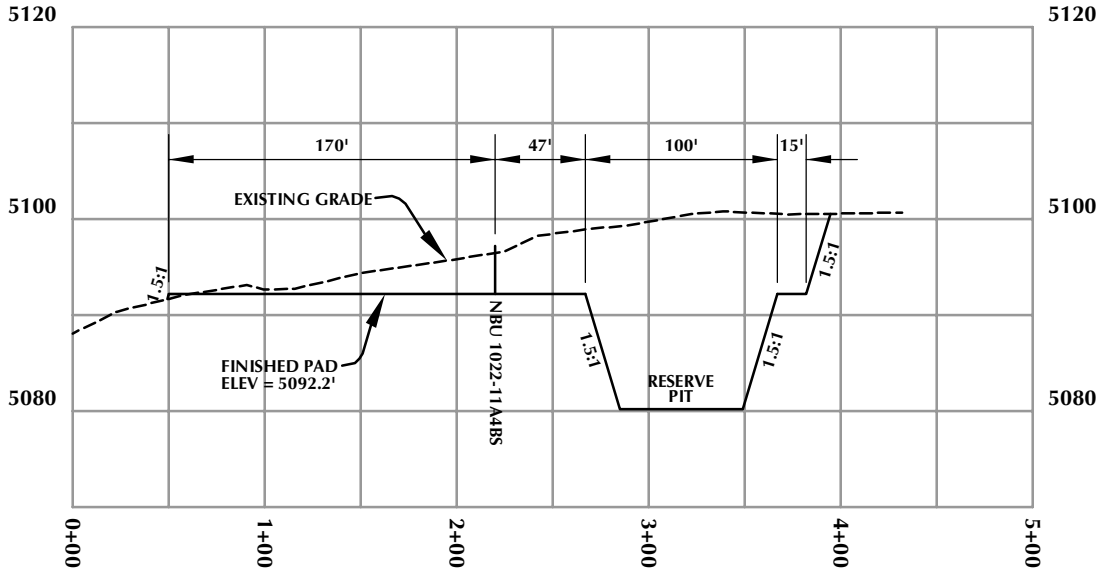
C:\ANADARKO\2010_63_NBU_FOCUS_1022-2\DWG\NBU_1022_2P\NBU_1022_2P_PAD_20110113.dwg, 3/28/2011 8:46:38 AM

RECEIVED: August 10, 2011

API Well Number: 43047518490000




## CROSS SECTION A-A'




## CROSS SECTION B-B'

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

WELL PAD - CROSS SECTIONS
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

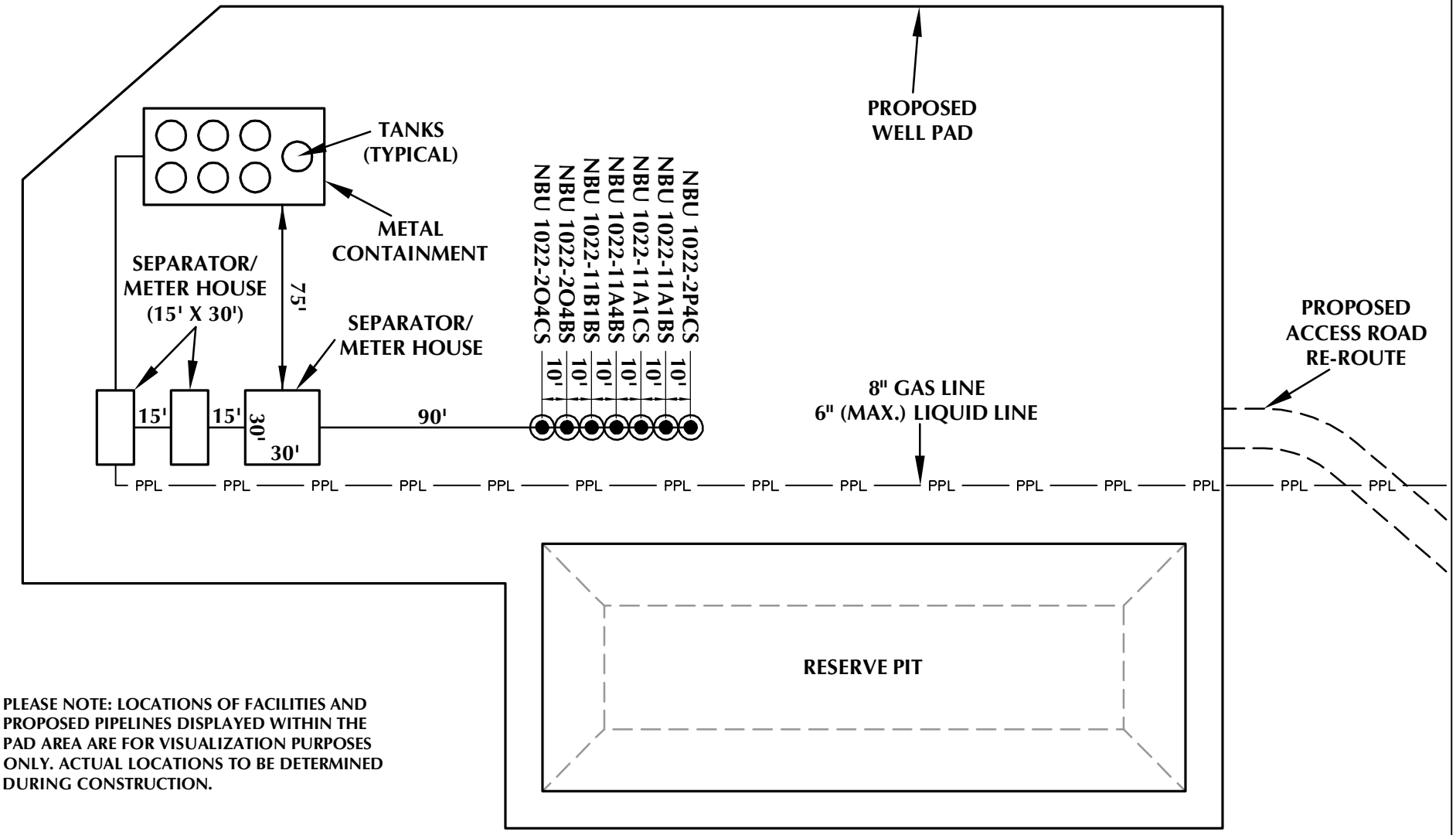
609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone 307-674-0609
Fax 307-674-0182

HORIZONTAL 0 50' 100' 1" = 100'
VERTICAL 0 10' 20' 1" = 20'

TIMBERLINE ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078
(435) 789-1365

Scale: 1"=100' | Date: 3/30/11 | SHEET NO: 10 10 OF 19
REVISED:

K:\ANADARKO\2010_63_NBU_FOCUS_1022-2\DWG\NBU_1022_2P\NBU_1022_2P_PAD_20110113.dwg, 3/28/2011 8:15:49 AM




PLEASE NOTE: LOCATIONS OF FACILITIES AND PROPOSED PIPELINES DISPLAYED WITHIN THE PAD AREA ARE FOR VISUALIZATION PURPOSES ONLY. ACTUAL LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

WELL PAD - FACILITIES DIAGRAM
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

609 CONSULTING, LLC
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Sheridan, WY 82801
Phone 307-674-0609
Fax 307-674-0182

WELL PAD LEGEND

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PPL — PROPOSED PIPELINE
- EPL — EXISTING PIPELINE

HORIZONTAL 0 30' 60' 1" = 60'

TIMBERLINE (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

Scale: 1"=60' | Date: 3/30/11 | SHEET NO: 11 11 OF 19
REVISED:

K:\ANADARKO\2010_63_NBU_FOCUS_1022-2\DWG\NBU_1022_2P\NBU_1022_2P_PAD_20110113.dwg, 3/28/2011 8:26:13 AM

RECEIVED: August 10, 2011

API Well Number: 43047518490000

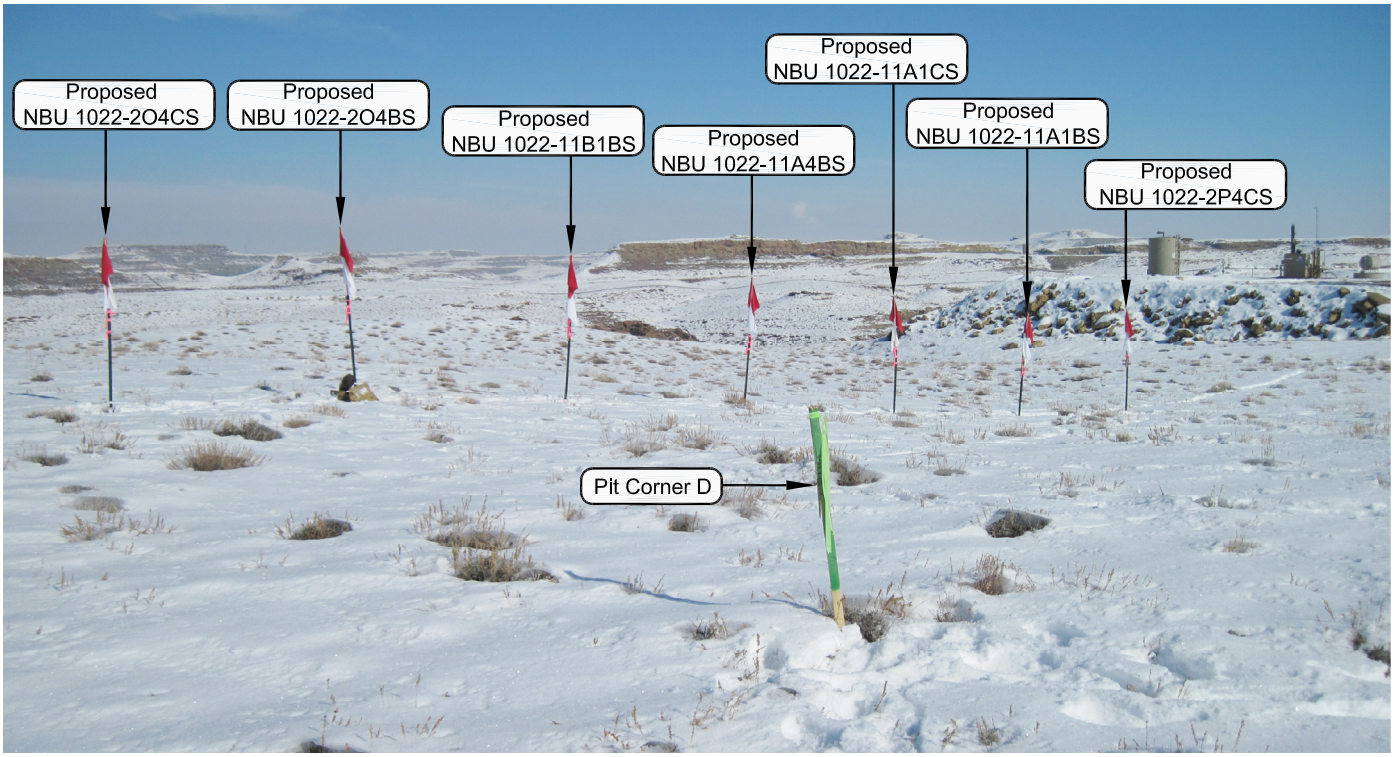


PHOTO VIEW: FROM CORNER D TO LOCATION STAKE

CAMERA ANGLE: NORTHEASTERLY

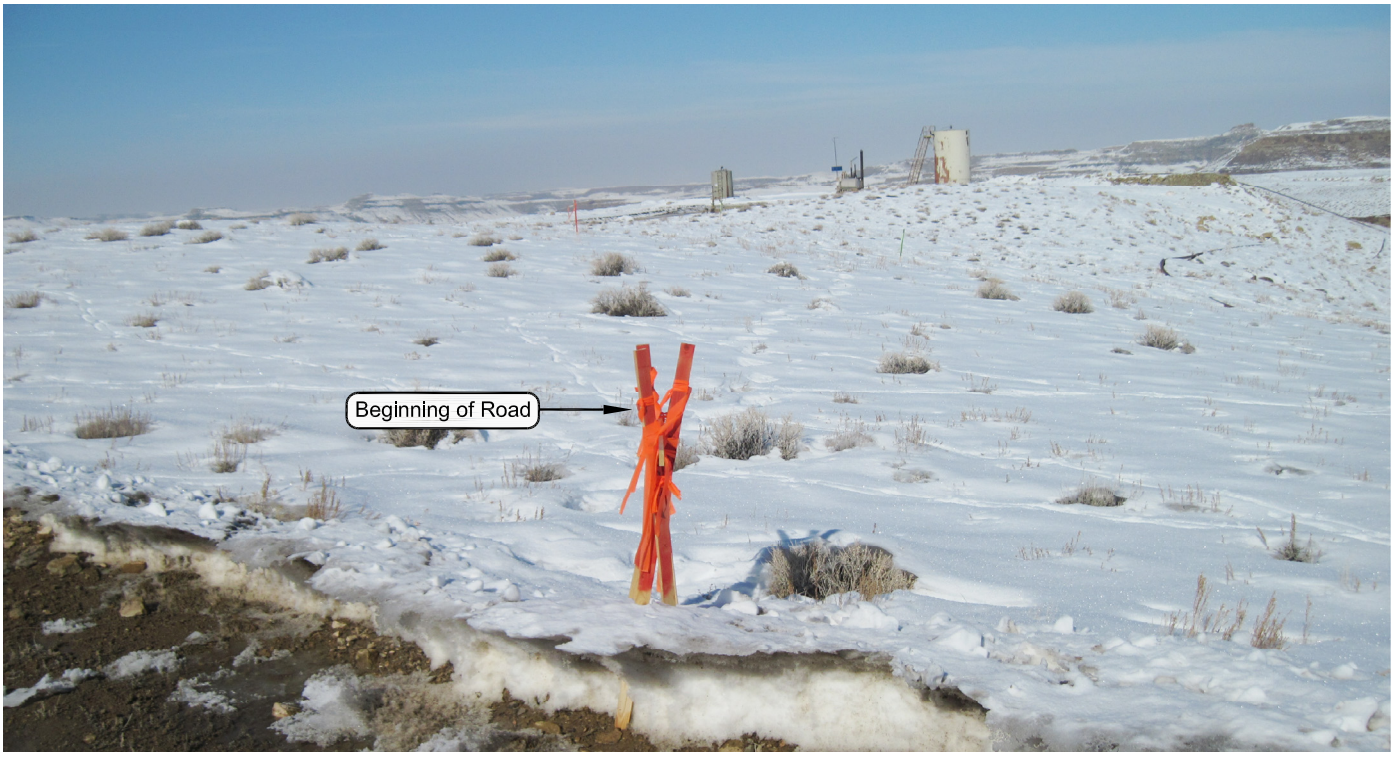


PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: NORTHWESTERLY

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

LOCATION PHOTOS
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH.

609 CONSULTING, LLC
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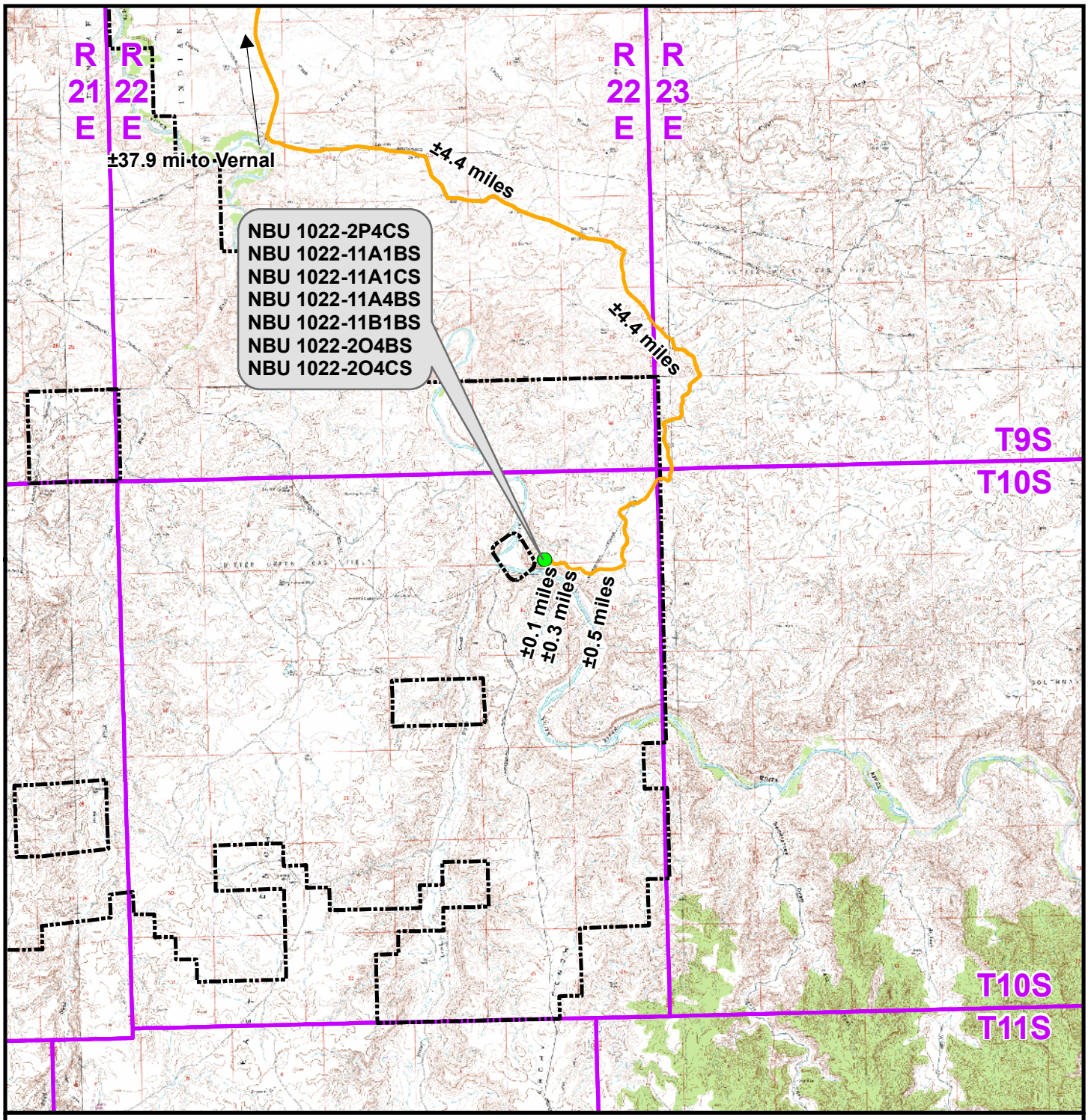
TIMBERLINE (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

| | | |
|---|---|---|
| DATE PHOTOS TAKEN: 01-06-11 | PHOTOS TAKEN BY: R.Y. | SHEET NO: 12 |
| DATE DRAWN: 01-24-11 | DRAWN BY: M.W.W. | 12 OF 19 |
| Date Last Revised: | | |

RECEIVED: August 10, 2011

API Well Number: 43047518490000




**Legend**

Distance From Well Pad - NBU 1022-2P To Unit Boundary: ±1,230ft

Proposed Well Location

Natural Buttes Unit Boundary

Access Route - Proposed

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

TOPO A
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
Fax (307) 674-0182

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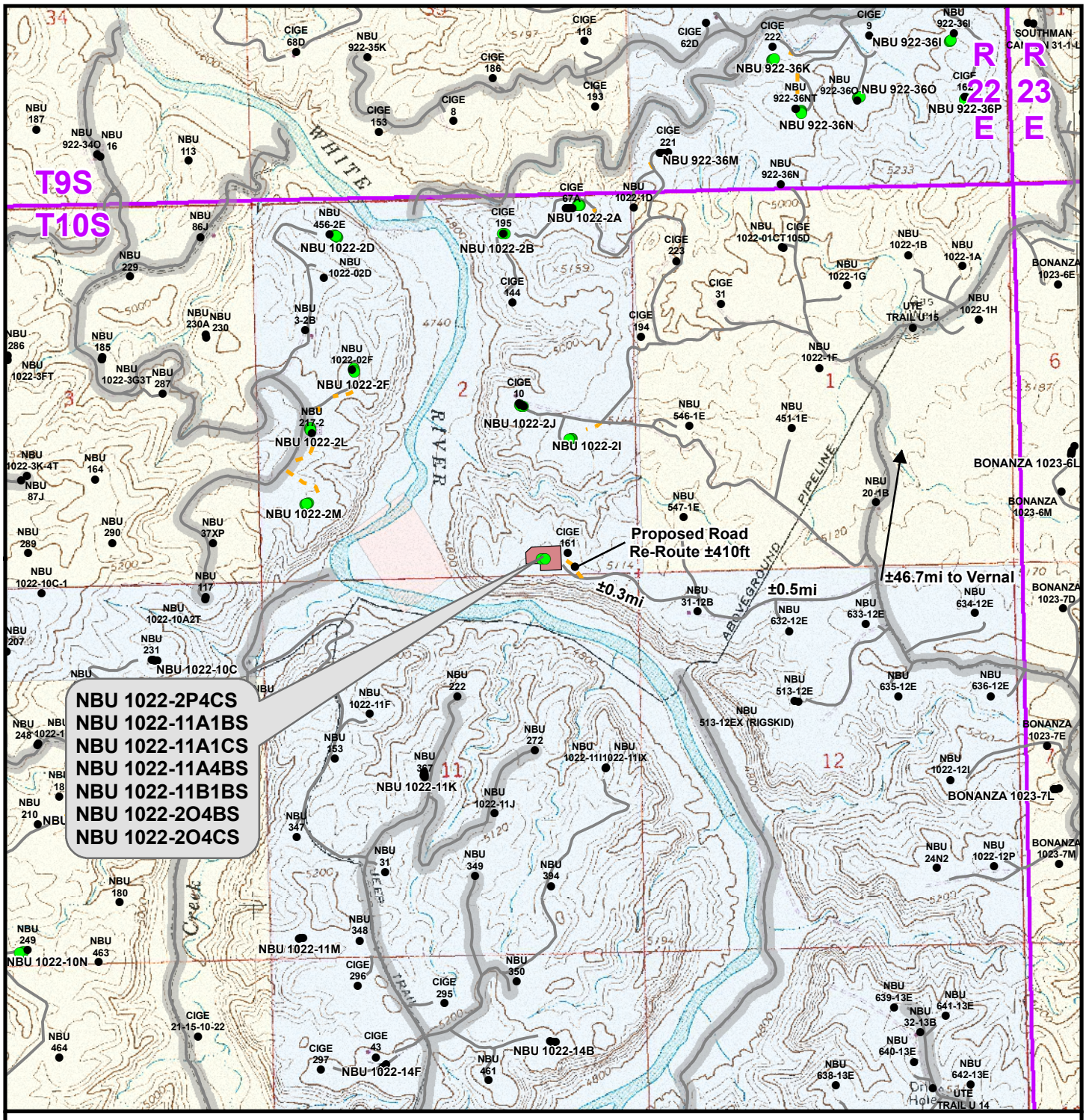
| | | | |
|---|---|---|---|
| Scale: 1:100,000 | NAD83 USP Central | Sheet No: 13 of 19 | |
| Drawn: KGS | Date: 30 Mar 2011 | | |
| Revised: | Date: | | |

API Well Number: 43047518490000




**Legend**

Total Proposed Road Re-Route Length: ±410ft

- Well - Proposed
- Well - Existing
- Well Pad
- Road - Proposed
- Road - Existing
- County Road
- Bureau of Land Management
- Indian Reservation
- State
- Private


**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202


**WELL PAD - NBU 1022-2P**

TOPO B
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

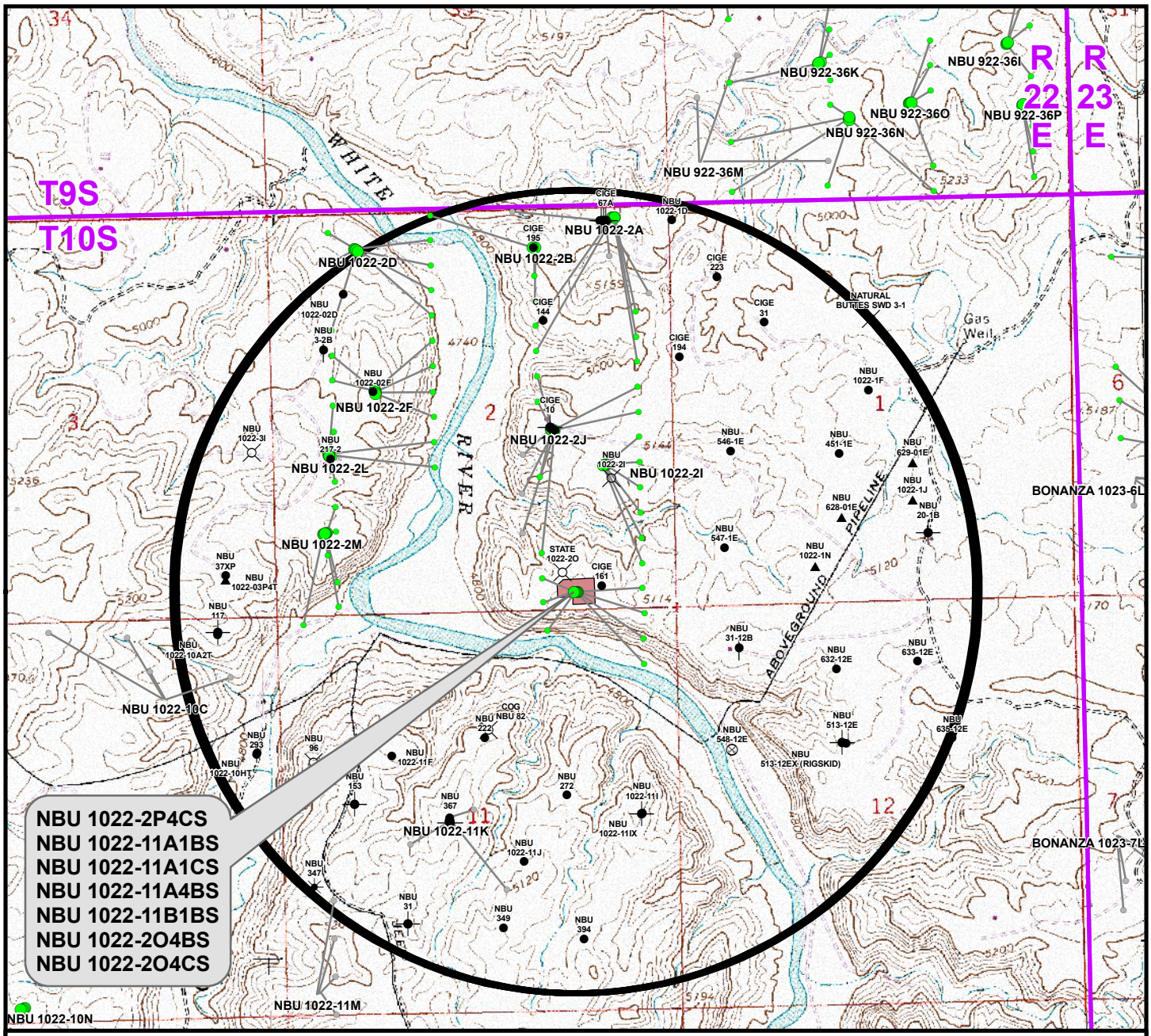

609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
Fax (307) 674-0182


N

| | | |
|---|---|---|
| Scale: 1" = 2,000ft | NAD83 USP Central | Sheet No: 14 of 19 |
| Drawn: KGS | Date: 30 Mar 2011 | |
| Revised: | Date: | |


**RECEIVED: August 10, 2011**

API Well Number: 43047518490000




| Proposed Well | Nearest Well Bore | Footage | Proposed Well | Nearest Well Bore | Footage |
|---|---|---|---|---|---|
| NBU 1022-2P4CS | CIGE 161 | 538ft | NBU 1022-11B1BS | CIGE 161 | 928ft |
| NBU 1022-11A1BS | CIGE 161 | 675ft | NBU 1022-2O4BS | NBU 1022-2O2S BH | 644ft |
| NBU 1022-11A1CS | CIGE 161 | 892ft | NBU 1022-2O4CS | CIGE 161 | 798ft |
| NBU 1022-11A4BS | CIGE 161 | 1,172ft | | | |

## Legend

Well locations derived from State of Utah, Dept. of Natural Resources, Division of Oil, Gas and Mining

- Well - Proposed
- Bottom Hole - Proposed
- Well Pad
- Well Path
- Bottom Hole - Existing
- Well - 1 Mile Radius

- Producing
- Active
- Spudded (Drilling commenced: Not yet completed)
- Approved permit (APD); not yet spudded
- New Permit (Not yet approved or drilled)
- Inactive
- Drilling Operations Suspended
- Temporarily-Abandoned
- Shut-In
- Plugged and Abandoned
- Location Abandoned
- Dry hole marker, buried
- Returned APD (Unapproved)


**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202


## WELL PAD - NBU 1022-2P

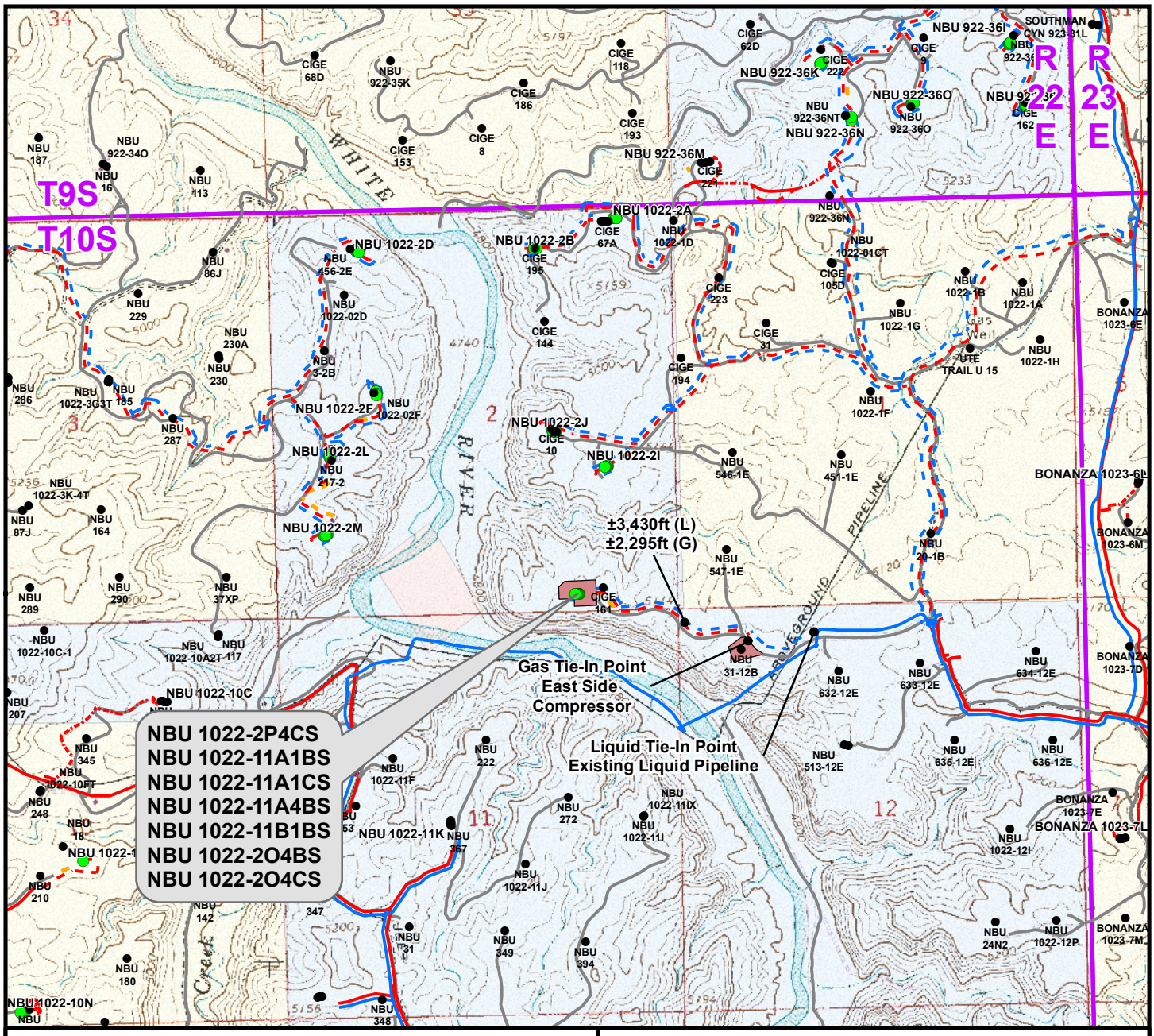
TOPO C
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH


609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
Fax (307) 674-0182


N

| Scale: 1" = 2,000ft | NAD83 USP Central | Sheet No: |
|---|---|---|
| Drawn: KGS | Date: 30 Mar 2011 | 15 of 19 |
| Revised: | Date: | |

API Well Number: 43047518490000




| Proposed Liquid Pipeline | Length |
|---|---|
| Proposed 6" (Max.) (Meter House to Edge of Pad) | ±475ft |
| Proposed 6" (Max.) (Edge of Pad to Existing Liquid Pipeline) | ±3,430ft |
| TOTAL PROPOSED LIQUID PIPELINE = | ±3,905ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Proposed 8" (Meter House to Edge of Pad) | ±475ft |
| Proposed 8" (Edge of Pad to East Side Compressor) | ±2,295ft |
| TOTAL PROPOSED GAS PIPELINE = | ±2,770ft |

**Legend**

- Well - Proposed
- Well - Existing
- Well Pad
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private


**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202


## WELL PAD - NBU 1022-2P

TOPO D
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH


609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
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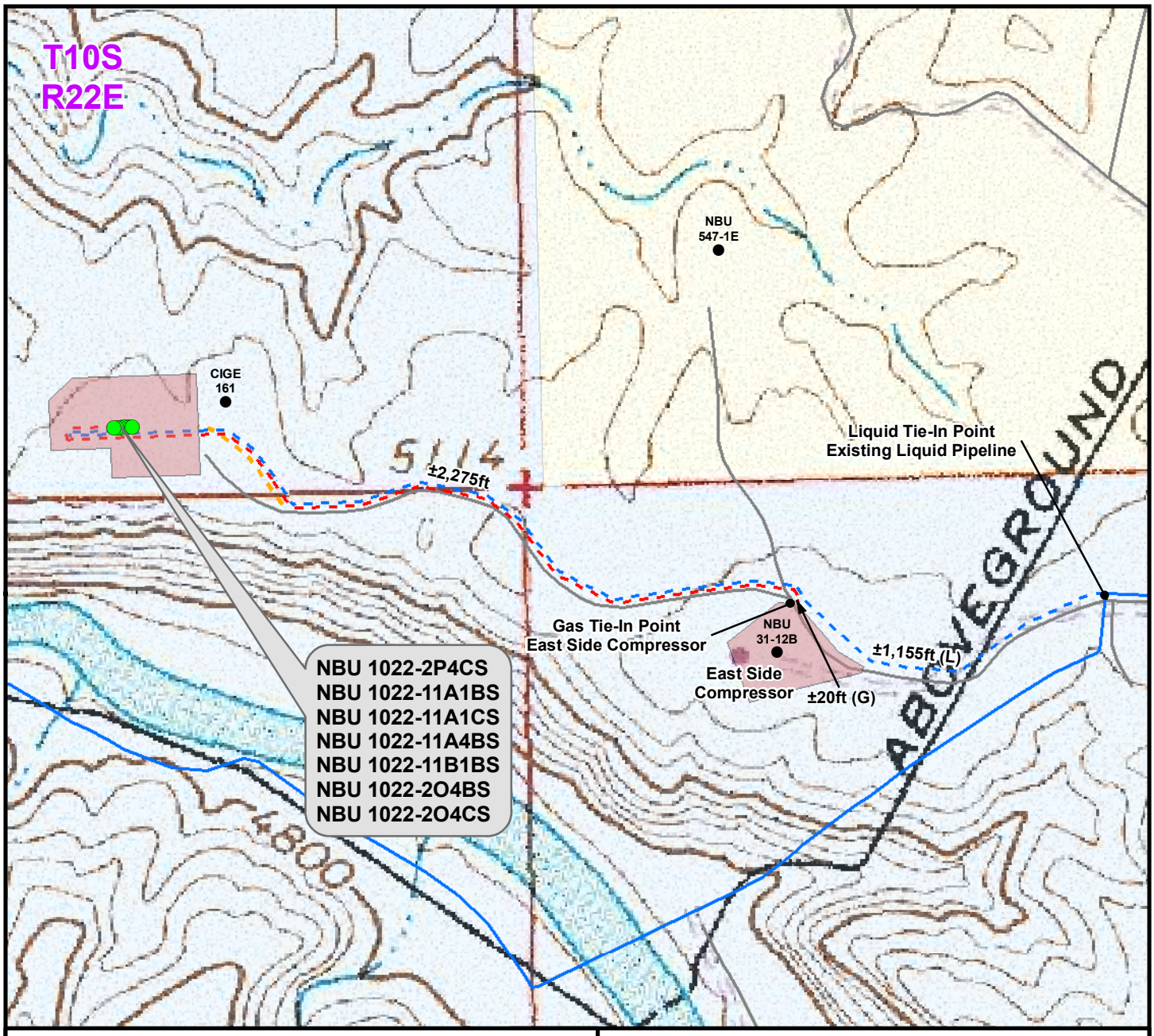
| Scale: 1" = 2,000ft | NAD83 USP Central | Sheet No: 16 of 19 |
|---|---|---|
| Drawn: KGS | Date: 30 Mar 2011 | |
| Revised: | Date: | |


**RECEIVED: August 10, 2011**




| Proposed Liquid Pipeline | Length |
|---|---|
| Proposed 6" (Max.) (Meter House to Edge of Pad) | ±475ft |
| Proposed 6" (Max.) (Edge of Pad to Existing Liquid Pipeline) | ±3,430ft |
| TOTAL PROPOSED LIQUID PIPELINE = | ±3,905ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Proposed 8" (Meter House to Edge of Pad) | ±475ft |
| Proposed 8" (Edge of Pad to East Side Compressor) | ±2,295ft |
| TOTAL PROPOSED GAS PIPELINE = | ±2,770ft |

**Legend**

- Well - Proposed
- Well - Existing
- Well Pad
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

TOPO D2 (PAD & PIPELINE DETAIL)
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH

609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
Fax (307) 674-0182

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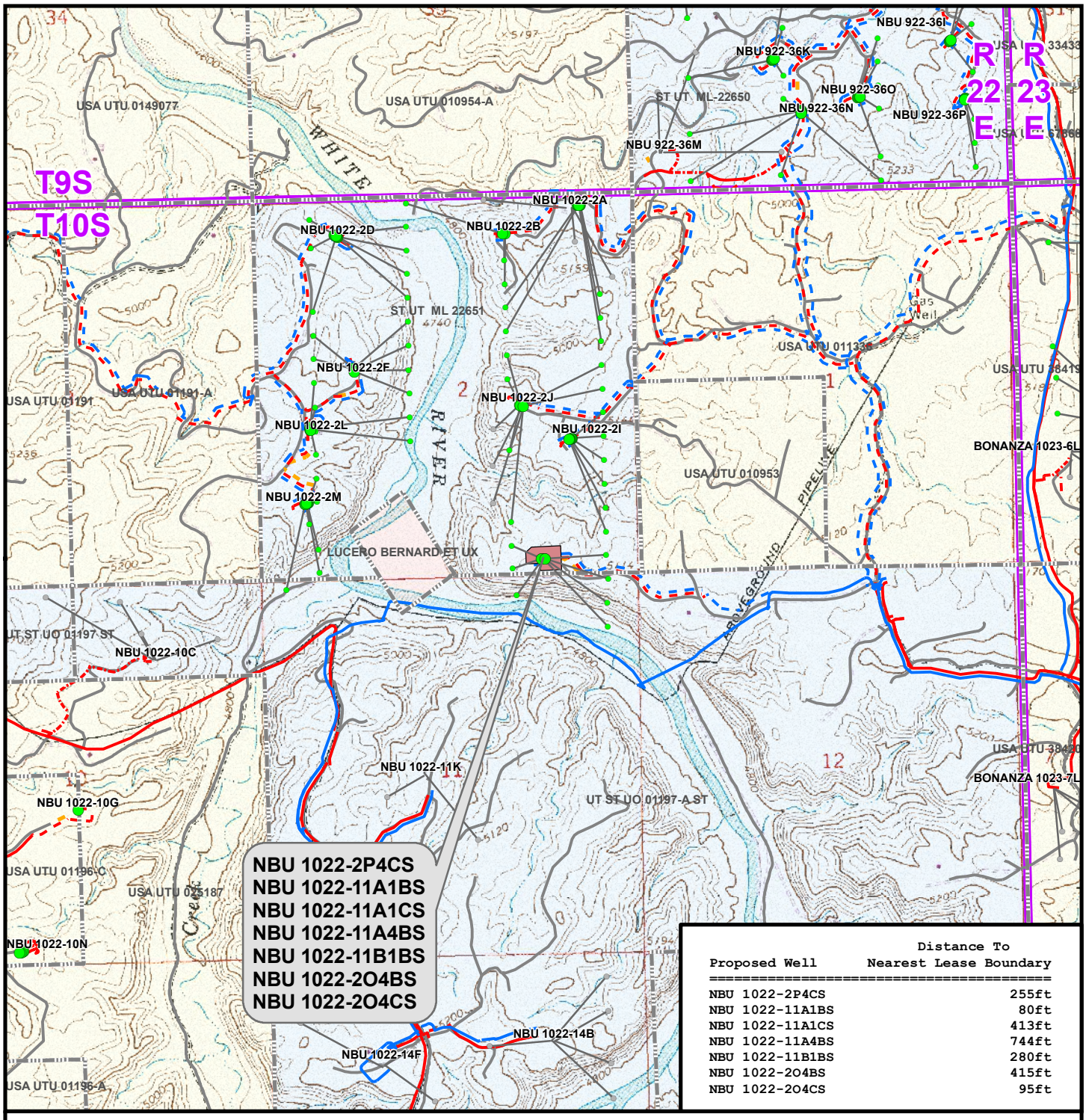
| | | | |
|---|---|---|---|
| Scale: 1" = 500ft | NAD83 USP Central | Sheet No: 17 of 19 | |
| Drawn: KGS | Date: 30 Mar 2011 | | |
| Revised: | Date: | | |

RECEIVED: August 10, 2011

API Well Number: 43047518490000




| Proposed Well | Distance To Nearest Lease Boundary |
|---|---|
| NBU 1022-2P4CS | 255ft |
| NBU 1022-11A1BS | 80ft |
| NBU 1022-11A1CS | 413ft |
| NBU 1022-11A4BS | 744ft |
| NBU 1022-11B1BS | 280ft |
| NBU 1022-2O4BS | 415ft |
| NBU 1022-2O4CS | 95ft |

**Legend**

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- Lease Boundary
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1022-2P**

TOPO E
NBU 1022-2P4CS,
NBU 1022-11A1BS, NBU 1022-11A1CS,
NBU 1022-11A4BS, NBU 1022-11B1BS,
NBU 1022-2O4BS & NBU 1022-2O4CS
LOCATED IN SECTION 2, T10S, R22E,
S.L.B.&M., UINTAH COUNTY, UTAH


609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone (307) 674-0609
Fax (307) 674-0182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| | | | |
|---|---|---|---|
| Scale: 1" = 2,000ft | NAD83 USP Central | Sheet No: 18 | 18 of 19 |
| Drawn: KGS | Date: 30 Mar 2011 | | |
| Revised: | Date: | | |

**Kerr-McGee Oil & Gas Onshore, LP**
**WELL PAD – NBU 1022-2P**
**WELLS – NBU 1022-2P4CS,**
**NBU 1022-11A1BS, NBU 1022-11A1CS,**
**NBU 1022-11A4BS, NBU 1022-11B1BS,**
**NBU 1022-2O4BS & NBU 1022-2O4CS**
**Section 2, T10S, R22E, S.L.B.&M.**

From the intersection of U.S. Highway 40 and 500 East Street in Vernal, Utah, proceed in an easterly, then southerly direction along U.S. Highway 40 approximately 3.3 miles to the junction of State Highway 45. Exit right and proceed in a southerly direction along State Highway 45 approximately 20.2 miles to the junction of the Glen Bench Road (County B Road 3260). Exit right and proceed in a southwesterly direction along the Glen Bench Road approximately 14.4 miles to the intersection of the Fidlar Road (County B Road 3410) which road intersection is approximately 400 feet northeast of the Mountain Fuel Bridge at the White River. Exit left and proceed in a southeasterly direction along the Fidlar Road approximately 4.4 miles to the intersection of the Seven Sisters Road (County B Road 3420). Exit right and proceed in a southeasterly, then southwesterly direction along the Seven Sisters Road approximately 4.4 miles to a service road to the west. Exit right and proceed in a westerly direction along the service road approximately 0.5 miles to a second service road to the northwest. Exit left and proceed in a northwesterly direction along the second service road approximately 0.3 miles to the proposed access road. Follow the road flags in a northwesterly direction approximately 410 feet to the proposed well location.

Total distance from Vernal, Utah to the proposed well location is approximately 47.6 miles in a southerly direction.



**RECEIVED: August 10, 2011**

API Well Number: 43047518490000

Scientific Drilling
Rocky Mountain Operations

Project: Uintah County, UT NAD27
Site: NBU 1022-2P PAD
Well: NBU 1022-2O4BS
Wellbore: OH
Design: PLAN #1 PRELIMINARY

Anadarko Petroleum Corporation

T M

Azimuths to True North
Magnetic North: 11.02°

Magnetic Field
Strength: 52316.3snT
Dip Angle: 65.86°
Date: 07/21/2011
Model: IGRF2010

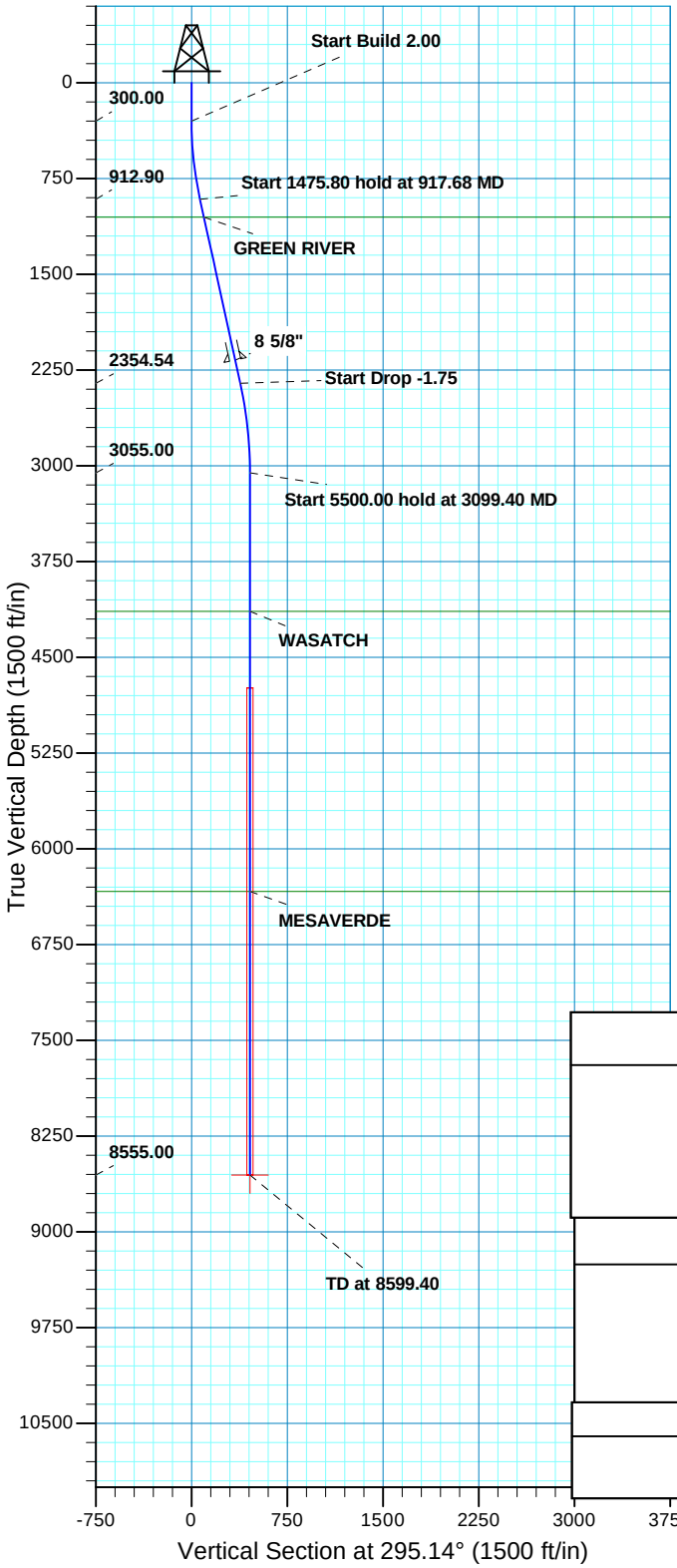
**WELL DETAILS: NBU 1022-2O4BS**

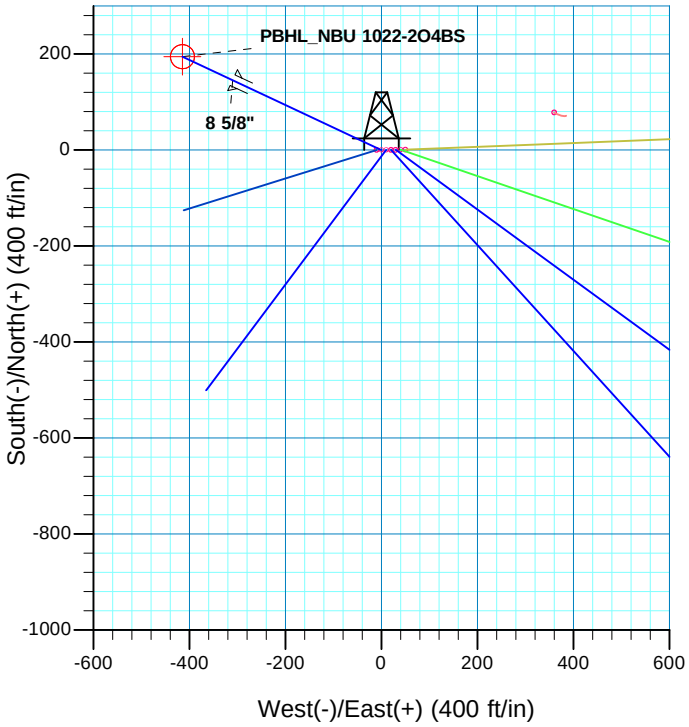
GL 5092' & KB 4'
@ 5096.00ft (ASSUMED)

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 603500.80 | 2587942.58 | 39° 58' 16.813 N | 109° 24' 7.056 W |

**DESIGN TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|
| PBHL | 8555.00 | 194.53 | -414.50 | 603685.55 | 2587523.63 | 39° 58' 18.736 N | 109° 24' 12.380 W | Circle (Radius: 25.00) |
| - plan hits target center | | | | | | | | |




**SECTION DETAILS**

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 917.68 | 12.35 | 295.14 | 912.90 | 28.18 | -60.05 | 2.00 | 295.14 | 66.33 | |
| 2393.48 | 12.35 | 295.14 | 2354.54 | 162.32 | -345.88 | 0.00 | 0.00 | 382.07 | |
| 3099.40 | 0.00 | 0.00 | 3055.00 | 194.53 | -414.50 | 1.75 | 180.00 | 457.88 | |
| 8599.40 | 0.00 | 0.00 | 8555.00 | 194.53 | -414.50 | 0.00 | 0.00 | 457.88 | PBHL_NBU 1022-2O4BS |

**PROJECT DETAILS: Uintah County, UT NAD27**

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Utah Central 4302
Location: SECTION 2 T10S R22E
System Datum: Mean Sea Level

**FORMATION TOP DETAILS**

| TVDPath | MDPath | Formation |
|---|---|---|
| 1052.00 | 1060.07 | GREEN RIVER |
| 4141.00 | 4185.40 | WASATCH |
| 6333.00 | 6377.40 | MESAVERDE |

**CASING DETAILS**

| TVD | MD | Name | Size |
|---|---|---|---|
| 2172.00 | 2206.62 | 8 5/8" | 8.625 |

Plan: PLAN #1 PRELIMINARY (NBU 1022-2O4BS/OH)

Created By: RobertScott Date: 12:51, July 21 2011

RECE

Scientific Drilling
Rocky Mountain Operations

# Kerr McGee Oil and Gas Onshore LP

**Uintah County, UT NAD27**
**NBU 1022-2P PAD**
**NBU 1022-2O4BS**

**OH**

**Plan: PLAN #1 PRELIMINARY**

# Standard Planning Report

**21 July, 2011**

Anadarko Petroleum Corporation

**RECEIVED:** August 10, 2011

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Project:** | Uintah County, UT NAD27 | **MD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Site:** | NBU 1022-2P PAD | **North Reference:** | True |
| **Well:** | NBU 1022-2O4BS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

| **Project** | Uintah County, UT NAD27 | | |
|---|---|---|---|
| **Map System:** | US State Plane 1927 (Exact solution) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 (NADCON CONUS) | | |
| **Map Zone:** | Utah Central 4302 | | |

| **Site** | NBU 1022-2P PAD, SECTION 2 T10S R22E | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 603,502.73 usft | **Latitude:** | 39° 58' 16.820 N |
| **From:** | Lat/Long | **Easting:** | 2,587,992.71 usft | **Longitude:** | 109° 24' 6.412 W |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 1.34 ° |

| **Well** | NBU 1022-2O4BS, 221 FSL 1392 FEL | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | -0.75 ft | **Northing:** | 603,500.80 usft | **Latitude:** | 39° 58' 16.813 N |
| | **+E/-W** | -50.17 ft | **Easting:** | 2,587,942.58 usft | **Longitude:** | 109° 24' 7.056 W |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | | **Ground Level:** | 5,092.00 ft |

| **Wellbore** | OH | | | | |
|---|---|---|---|---|---|
| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
| | IGRF2010 | 07/21/11 | 11.02 | 65.86 | 52,316 |

| **Design** | PLAN #1 PRELIMINARY | | | |
|---|---|---|---|---|
| **Audit Notes:** | | | | |
| **Version:** | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |

| **Vertical Section:** | **Depth From (TVD) (ft)** | **+N/-S (ft)** | **+E/-W (ft)** | **Direction (°)** |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 295.14 |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 917.68 | 12.35 | 295.14 | 912.90 | 28.18 | -60.05 | 2.00 | 2.00 | 0.00 | 295.14 | |
| 2,393.48 | 12.35 | 295.14 | 2,354.54 | 162.32 | -345.88 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,099.40 | 0.00 | 0.00 | 3,055.00 | 194.53 | -414.50 | 1.75 | -1.75 | 0.00 | 180.00 | |
| 8,599.40 | 0.00 | 0.00 | 8,555.00 | 194.53 | -414.50 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_NBU 1022-2O |

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Project:** | Uintah County, UT NAD27 | **MD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Site:** | NBU 1022-2P PAD | **North Reference:** | True |
| **Well:** | NBU 1022-2O4BS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start Build 2.00** | | | | | | | | | |
| 400.00 | 2.00 | 295.14 | 399.98 | 0.74 | -1.58 | 1.75 | 2.00 | 2.00 | 0.00 |
| 500.00 | 4.00 | 295.14 | 499.84 | 2.96 | -6.32 | 6.98 | 2.00 | 2.00 | 0.00 |
| 600.00 | 6.00 | 295.14 | 599.45 | 6.67 | -14.21 | 15.69 | 2.00 | 2.00 | 0.00 |
| 700.00 | 8.00 | 295.14 | 698.70 | 11.84 | -25.24 | 27.88 | 2.00 | 2.00 | 0.00 |
| 800.00 | 10.00 | 295.14 | 797.47 | 18.49 | -39.40 | 43.52 | 2.00 | 2.00 | 0.00 |
| 900.00 | 12.00 | 295.14 | 895.62 | 26.60 | -56.67 | 62.60 | 2.00 | 2.00 | 0.00 |
| 917.68 | 12.35 | 295.14 | 912.90 | 28.18 | -60.05 | 66.33 | 2.00 | 2.00 | 0.00 |
| **Start 1475.80 hold at 917.68 MD** | | | | | | | | | |
| 1,000.00 | 12.35 | 295.14 | 993.32 | 35.66 | -75.99 | 83.94 | 0.00 | 0.00 | 0.00 |
| 1,060.07 | 12.35 | 295.14 | 1,052.00 | 41.12 | -87.63 | 96.80 | 0.00 | 0.00 | 0.00 |
| **GREEN RIVER** | | | | | | | | | |
| 1,100.00 | 12.35 | 295.14 | 1,091.00 | 44.75 | -95.36 | 105.34 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 12.35 | 295.14 | 1,188.69 | 53.84 | -114.73 | 126.73 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 12.35 | 295.14 | 1,286.37 | 62.93 | -134.09 | 148.13 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 12.35 | 295.14 | 1,384.06 | 72.02 | -153.46 | 169.52 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 12.35 | 295.14 | 1,481.74 | 81.11 | -172.83 | 190.92 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 12.35 | 295.14 | 1,579.43 | 90.20 | -192.20 | 212.31 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 12.35 | 295.14 | 1,677.11 | 99.29 | -211.56 | 233.70 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 12.35 | 295.14 | 1,774.80 | 108.38 | -230.93 | 255.10 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 12.35 | 295.14 | 1,872.48 | 117.47 | -250.30 | 276.49 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 12.35 | 295.14 | 1,970.17 | 126.56 | -269.67 | 297.89 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 12.35 | 295.14 | 2,067.85 | 135.64 | -289.04 | 319.28 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 12.35 | 295.14 | 2,165.53 | 144.73 | -308.40 | 340.68 | 0.00 | 0.00 | 0.00 |
| 2,206.62 | 12.35 | 295.14 | 2,172.00 | 145.34 | -309.68 | 342.09 | 0.00 | 0.00 | 0.00 |
| **8 5/8"** | | | | | | | | | |
| 2,300.00 | 12.35 | 295.14 | 2,263.22 | 153.82 | -327.77 | 362.07 | 0.00 | 0.00 | 0.00 |
| 2,393.48 | 12.35 | 295.14 | 2,354.54 | 162.32 | -345.88 | 382.07 | 0.00 | 0.00 | 0.00 |
| **Start Drop -1.75** | | | | | | | | | |
| 2,400.00 | 12.24 | 295.14 | 2,360.91 | 162.91 | -347.13 | 383.46 | 1.75 | -1.75 | 0.00 |
| 2,500.00 | 10.49 | 295.14 | 2,458.94 | 171.28 | -364.97 | 403.16 | 1.75 | -1.75 | 0.00 |
| 2,600.00 | 8.74 | 295.14 | 2,557.53 | 178.38 | -380.09 | 419.86 | 1.75 | -1.75 | 0.00 |
| 2,700.00 | 6.99 | 295.14 | 2,656.59 | 184.19 | -392.48 | 433.55 | 1.75 | -1.75 | 0.00 |
| 2,800.00 | 5.24 | 295.14 | 2,756.01 | 188.71 | -402.12 | 444.20 | 1.75 | -1.75 | 0.00 |
| 2,900.00 | 3.49 | 295.14 | 2,855.72 | 191.95 | -409.01 | 451.81 | 1.75 | -1.75 | 0.00 |
| 3,000.00 | 1.74 | 295.14 | 2,955.61 | 193.89 | -413.14 | 456.37 | 1.75 | -1.75 | 0.00 |
| 3,099.40 | 0.00 | 0.00 | 3,055.00 | 194.53 | -414.50 | 457.88 | 1.75 | -1.75 | 0.00 |
| **Start 5500.00 hold at 3099.40 MD** | | | | | | | | | |
| 3,100.00 | 0.00 | 0.00 | 3,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 0.00 | 0.00 | 3,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 0.00 | 0.00 | 3,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 0.00 | 0.00 | 3,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 0.00 | 0.00 | 3,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 0.00 | 0.00 | 3,555.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 0.00 | 0.00 | 3,655.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 0.00 | 0.00 | 3,755.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 0.00 | 0.00 | 3,855.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Project:** | Uintah County, UT NAD27 | **MD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Site:** | NBU 1022-2P PAD | **North Reference:** | True |
| **Well:** | NBU 1022-2O4BS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,000.00 | 0.00 | 0.00 | 3,955.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 0.00 | 0.00 | 4,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,185.40 | 0.00 | 0.00 | 4,141.00 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| **WASATCH** | | | | | | | | | |
| 4,200.00 | 0.00 | 0.00 | 4,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 0.00 | 0.00 | 4,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 0.00 | 0.00 | 4,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 0.00 | 0.00 | 4,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 0.00 | 0.00 | 4,555.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 0.00 | 0.00 | 4,655.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 0.00 | 0.00 | 4,755.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 0.00 | 0.00 | 4,855.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 0.00 | 0.00 | 4,955.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 0.00 | 0.00 | 5,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,555.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,655.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,755.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,855.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,955.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 6,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,377.40 | 0.00 | 0.00 | 6,333.00 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| **MESAVERDE** | | | | | | | | | |
| 6,400.00 | 0.00 | 0.00 | 6,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,555.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,655.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,755.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,855.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,955.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 7,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 7,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,555.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,655.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,755.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,855.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,955.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 8,055.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 0.00 | 0.00 | 8,155.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 0.00 | 0.00 | 8,255.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 0.00 | 0.00 | 8,355.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 0.00 | 0.00 | 8,455.60 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| 8,599.40 | 0.00 | 0.00 | 8,555.00 | 194.53 | -414.50 | 457.88 | 0.00 | 0.00 | 0.00 |
| **PBHL_NBU 1022-2O4BS** | | | | | | | | | |

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Project:** | Uintah County, UT NAD27 | **MD Reference:** | GL 5092' & KB 4' @ 5096.00ft (ASSUMED) |
| **Site:** | NBU 1022-2P PAD | **North Reference:** | True |
| **Well:** | NBU 1022-2O4BS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| PBHL_NBU 1022-2O4B<br>- plan hits target center<br>- Circle (radius 25.00) | 0.00 | 0.00 | 8,555.00 | 194.53 | -414.50 | 603,685.55 | 2,587,523.63 | 39° 58' 18.736 N | 109° 24' 12.380 W |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
|---|---|---|---|---|
| 2,206.62 | 2,172.00 | 8 5/8" | 8.625 | 11.000 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,060.07 | 1,052.00 | GREEN RIVER | | | |
| 4,185.40 | 4,141.00 | WASATCH | | | |
| 6,377.40 | 6,333.00 | MESAVERDE | | | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 300.00 | 300.00 | 0.00 | 0.00 | Start Build 2.00 |
| 917.68 | 912.90 | 28.18 | -60.05 | Start 1475.80 hold at 917.68 MD |
| 2,393.48 | 2,354.54 | 162.32 | -345.88 | Start Drop -1.75 |
| 3,099.40 | 3,055.00 | 194.53 | -414.50 | Start 5500.00 hold at 3099.40 MD |
| 8,599.40 | 8,555.00 | 194.53 | -414.50 | TD at 8599.40 |



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| | | | |
|---|---|---|---|
| | **NBU 1022-11A1BS** | | |
| Surface: | 221 FSL / 1352 FEL | SWSE | Lot 8 |
| BHL: | 80 FNL / 473 FEL | NENE | Lot |
| | **NBU 1022-11A1CS** | | |
| Surface: | 221 FSL / 1362 FEL | SWSE | Lot 8 |
| BHL: | 413 FNL / 491 FEL | NENE | Lot |
| | **NBU 1022-11A4BS** | | |
| Surface: | 221 FSL / 1372 FEL | SWSE | Lot 8 |
| BHL: | 744 FNL / 490 FEL | NENE | Lot |
| | **NBU 1022-11B1BS** | | |
| Surface: | 221 FSL / 1382 FEL | SWSE | Lot 8 |
| BHL: | 280 FNL / 1755 FEL | NWNE | Lot |
| | **NBU 1022-2O4BS** | | |
| Surface: | 221 FSL / 1392 FEL | SWSE | Lot 8 |
| BHL: | 415 FSL / 1807 FEL | SWSE | Lot 8 |
| | **NBU 1022-2O4CS** | | |
| Surface: | 220 FSL / 1402 FEL | SWSE | Lot 8 |
| BHL: | 95 FSL / 1804 FEL | SWSE | Lot 8 |
| | **NBU 1022-2P4CS** | | |
| Surface: | 221 FSL / 1342 FEL | SWSE | Lot 8 |
| BHL: | 255 FSL / 496 FEL | SESE | Lot |

Pad: NBU 1022-2P PAD
Section 2 T10S R22E
Mineral Lease: ST UT ML 22651

Uintah County, Utah
Operator: Kerr-McGee Oil & Gas Onshore LP

This SUPO contains surface operating procedures for Kerr-McGee Oil & Gas Onshore LP (KMG), a wholly owned subsidiary of Anadarko Petroleum Corporation (APC) pertaining to actions that involve the State of Utah School and Institutional Trust Lands Administration (SITLA) in the development of minerals leased to APC/KMG (including but not limited to, APDs/SULAs/ROEs/ROWs and/or easements.)

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See associated Utah Division of Oil, Gas, and Mining (UDOGM) Form 3(s), plats, maps, and other attachments for site-specific information on projects represented herein.

In accordance with Utah Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling, these wells will be directionally drilled. Refer to Topo Map A for directions to the location and Topo Maps A and B for location of access roads within a 2-mile radius.

**A. Existing Roads:**

Existing roads consist of county and improved/unimproved lease roads. KMG will maintain existing roads in a condition that is the same as or better than before operations began and in a safe and usable condition. Maintenance of existing roads will continue until final abandonment and reclamation of well pads and/or other facilities. The road maintenance may include, but is not limited to, blading, ditching, culvert installation/cleanout, surfacing, and dust control.

Typically, roads, gathering lines and electrical distribution lines will occupy common disturbance corridors and roadways will be used as working space. All disturbances located in the same corridor will overlap each other to the maximum extent possible; in no case will the maximum disturbance width of the access road and utility corridors exceed 50', unless otherwise approved.

**B. Planned Access Roads:**

One new access road is proposed (see Topo Map B). The ±410' reroute will follow the proposed gas and liquid pipelines from the East edge of the pad to existing access road. Applicable Uintah County encroachment and/or pipeline crossing permits will be obtained prior to construction/development. No other pipelines will be crossed at this location.

If there are roads that are new or to be reconstructed, they will be located, designed, and maintained to meet the standards of SITLA and other commonly accepted Best Management Practices (BMPs). If a new road/corridor were to cross a water of the United States, KMG will adhere to the requirements of applicable Nationwide or Individual Permits of the Department of Army Corps of Engineers.

During the onsite, turnouts, major cut and fills, culverts, bridges, gates, cattle guards, low water crossings, or modifications needed to existing infrastructure/facilities were determined, as applicable, are typically shown on attached Exhibits and Topo maps.

**C. Location of Existing and Proposed Facilities:**

This pad will expand the existing pad for the CIGE 161. The CIGE 161 well location is a vertical producing well according to Utah Division of Oil, Gas and Mining (UDOGM) records as of June 2, 2011.

Production facilities (see Well Pad Design Summary and Facilities Diagram):

Production facilities will be installed on the disturbed portion of the well pad and may include bermed components (typically excluding dehy's and/or separators) that contain fluids (i.e. production tanks, produced liquids tanks).

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The berms will be constructed of compacted subsoil or corrugated metal, impervious, designed to hold 110% of the capacity of the largest tank, and be independent of the back cut. All permanent (on-site six months or longer) above ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth-tone color chosen at the onsite in coordination with SITLA.

**Gathering Facilities:**

The following pipeline transmission facilities will apply if the well is productive (see Topo D):

The total gas gathering (steel line pipe with fusion bond epoxy coating) pipeline distances from the meter to the tie in point is ±2,770’ and the individual segments are broken up as follows:

±475' (0.09 miles) –New 8” buried gas pipeline from the meter to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.
±2,295' (0.43 miles) –New 8” buried gas pipeline from the edge of pad to the tie-in at the East Side Compressor. Please refer to Topo D2 - Pad and Pipeline Detail.

The total liquid gathering pipeline distance from the separator to the tie in point is ±3,905’and the individual segments are broken up as follows:

±475' (0.09 miles) –New 6” buried liquid pipeline from the separator to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.
±3,430' (0.65 miles) –New 6” buried liquid pipeline from the edge of pad to the tie-in at the existing liquid pipeline. Please refer to Topo D2 - Pad and Pipeline Detail.

The liquid gathering lines will be made of polyethylene or a composite polyethylene/steel or polyethylene/fiberglass that is not subject to internal or external pipe corrosion. The content of the produced fluids to be transferred by the liquid gathering system will be approximately 92% produced water and 8% condensate. Trunk line valve connections for the water gathering system will be below ground but accessible from the surface in order to prevent freezing during winter time.

The proposed pipelines will be buried and will include gas gathering and liquid gathering pipelines in the same trench. Where the pipeline is adjacent to the road or well pad, the road and/or well pad will be utilized for construction activities and staging. KMG requests a permanent 30' right-of-way adjacent to the road for life-of-project for maintenance, repairs, and/or upgrades, no additional right-of-way will be needed beyond the 30’. Where the pipeline is not adjacent to the road or well pad, KMG requests a temporary 45’ construction right-of-way 30' permanent right-of-way.

The proposed trench width for the pipeline would range from 18-48 inches and will be excavated to a depth of 48 to 60 inches of normal soil cover or 24 inches of cover in consolidated rock. During construction blasting may occur along the proposed right-of-way where trenching equipment cannot cut into the bedrock. Large debris and rocks removed from the earth during trenching and blasting that could not be returned to the trench would be distributed evenly and naturally in the project area. The proposed pipelines will be pressure tested pneumatically (depending on size) or with fluids (either fresh or produced). If fluids are used, there will be no discharge to the surface.

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Pipeline signs will be installed along the right-of-way to indicate the pipeline proximity and ownership, as well as to provide emergency contact phone numbers. Above ground valves, T's, and/or cathodic protection will be installed at various locations for connection, corrosion prevention and/or for safety purposes.

**D. Location and Type of Water Supply:**

Water for drilling purposes will be obtained from one of the following sources:

- Dalbo Inc.'s underground well located in Ouray, Utah, Sec. 32 T4S R3E, Water User Claim number 43-8496, application number 53617.
- Price Water Pumping Inc. Green River and White River, various sources, Water Right Number 49-1659, application number: a35745.

Water will be hauled to location over the roads marked on Maps A and B.

No water well is to be drilled on this lease.

**E. Source of Construction Materials:**

Construction operations will typically be completed with native materials found on location. If needed, construction materials that must be imported to the site (mineral material aggregate, soils or materials suitable for fill/surfacing) will be obtained from a nearby permitted source and described in subsequent Sundry requests. No construction materials will be removed from State lands without prior approval from SITLA.

**F. Methods for Handling Waste Materials:**

Should the well be productive, produced water will be contained in a water tank and will be transported by pipeline and/or truck to an approved disposal sites facilities and/or Salt Water Disposal (SWD) injection well. Currently, those facilities are:

RNI in Sec. 5 T9S R22E
Ace Oilfield in Sec. 2 T6S R20E
MC&MC in Sec. 12 T6S R19E
Pipeline Facility in Sec. 36 T9S R20E
Goat Pasture Evaporation Pond in SW/4 Sec. 16 T10S R22E
Bonanza Evaporation Pond in Sec. 2 T10S R23E
Ouray #1 SWD in Sec. 1 T9S R21E
NBU 159 SWD in Sec. 35 T9S R21E
CIGE 112D SWD in Sec. 19 T9S R21E
CIGE 114 SWD in Sec. 34 T9S R21E
NBU 921-34K SWD in Sec. 34 T9S R21E
NBU 921-33F SWD in Sec. 33 T9S R21E
NBU 921-34L SWD in Sec. 34 T9S R21E

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Drill cuttings and/or fluids will be contained in the reserve/frac pit. Cuttings will be buried in pit(s) upon closure. Unless otherwise approved, no oil or other oil-based drilling additives, chromium/metals-based, or saline muds will be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives will be used in the mud system.

Pits will be constructed to minimize the accumulation of surface runoff. Should fluid hydrocarbons be encountered during drilling, completions or well testing, product will either be contained in test tanks on the well site or evacuated by vacuum trucks and transported to an approved disposal/sales facility. Should petroleum hydrocarbons unexpectedly be released into a pit, they will be removed as soon as practical but in no case will they remain longer than 72 hours unless an alternate is approved by SITLA. Should timely removal prove infeasible, the pit will be netted with mesh no larger than 1 inch until such time as hydrocarbons can be removed. Hydrocarbon removal will also take place prior to the closure of the pit, unless authorization is provided for disposal via alternative pit closure methods (e.g. solidification.)

The reserve and/or fracture stimulation pit will be lined with a synthetic material 20 mil or thicker, The liner will be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. Any additional pits necessary for subsequent operations, such as temporary flare or workover pits, will be contained within the originally approved well pad and disturbance boundaries. Such temporary pits will be backfilled and reclaimed within 180 days of completion of work at a well location.

For the protection of livestock and wildlife, all open pits and cellars will be fenced/covered to prevent wildlife or livestock entry. Total height of pit fencing will be at least 42 inches and corner posts will be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts shall be used between the corner braces. Maximum distance between any 2 fence posts shall be no greater than 16 feet.

Pits containing drilling cuttings, mud, and/or completions fluids will be allowed to dry. Any free fluids remaining after after six (6) months from reaching total depth, date of completion, and/or determination of inactivity will be removed (as weather conditions allow) to an approved site and the pit reclaimed. Additional drying methods may include fly-ash solidification or sprinkler evaporation. Installation and operation of any sprinklers, pumps, and equipment will ensure that water spray or mist does not drift. Reserve pit liners will be cut off or folded as near to the mud surface as possible and as safety considerations allow and buried on location.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA) subtitle C will be placed in the reserve pit. All refuse generated during construction, drilling, completion, and well testing activities will be contained in an enclosed receptacle, removed from the drill locations promptly, and transported to an approved disposal facility.

Portable, self-contained chemical toilets and/or sewage processing facilities will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility. All applicable regulations pertaining to disposal of human and solid waste will be observed.

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Any undesirable event, including accidental release of fluids, or release in excess of reportable quantities, will be managed according to the notification requirements of UDOGMs "Reporting Oil and Gas Undesirable Events" rule. Where State wells are participatory to a Federal agreement, according to NTL-3A, the appropriate Federal agencies will be notified.

**Materials Management**

Hazardous materials above reportable quantities will not be produced by drilling or completing proposed wells or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or containment listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended 42 U.S.C. 9601 et seq., and the regulations issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities and may be kept in limited quantities on drilling sites and well locations for short periods of time during drilling or completion activities.

**G. Ancillary Facilities:**

None are anticipated.

**H. Well Site Layout (see Well Pad Design Summary):**

The location, orientation and aerial extent of each drill pad; reserve/completion/flare pit; access road ingress/egress points, drilling rig, dikes/ditches, existing wells/infrastructure; proposed cuts and fills; and topsoil and spoil material stockpile locations are depicted on the exhibits for each project, where applicable. Site-specific conditions may require slight deviation in actual equipment and facility layout; however, the area of disturbance, as described in the survey, will not be exceeded.

Coordinates are provided in the National Spatial Reference System, North American Datum, 1927 (NAD27) or latest edition. Distances are depicted on each plat to the nearest two adjacent section lines.

**I. Plans for Reclamation of the Surface:**

Surface reclamation will be undertaken in two phases: interim and final. Interim reclamation is conducted following well completion and extends through the period of production. This reclamation is for the area of the well pad that is not required for production activities. Final reclamation is conducted following well plugging/conversion and/or facility abandonment processes.

Reclamation activities in both phases may include but is not limited to the re-contouring or re-configuration of topographic surfaces, restoration of drainage systems, segregation of spoils materials, minimizing surface disturbance, re-evaluating backfill requirements, pit closure, topsoil redistribution, soil treatments, seeding and weed control.

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**Interim Reclamation**

Interim reclamation includes pit closure, re-contouring (where possible), soil bed preparation, topsoil placement, seeding, and/or weed control.

Interim re-contouring involves bringing all construction material from cuts and fills back onto the well pad and site and reestablishing the natural contours where desirable and practical. Fill and stockpiled spoils no longer necessary to the operation will be spread on the cut slopes and covered with stockpiled topsoil. All stockpiled top soils will be used for interim reclamation where practical to maintain soil viability. Where possible, the land surface will be left “rough” after re-contouring to ensure that the maximum surface area will be available to support the reestablishment of vegetative cover.

A reserve pit, upon being allowed to dry, will be backfilled and compacted with cover materials that are void of any topsoil, vegetation, large stones, rocks or foreign objects. Soils that are moisture laden, saturated, or partially/completely frozen will not be used for backfill or cover. The pit area will be mounded to allow for settling and to promote positive surface drainage away from the pit.

**Final Reclamation**

Final reclamation will be performed for newly drilled unproductive wells and/or at the end of the life of a productive well. As soon as practical after the conclusion of drilling and testing operations, unproductive drill holes will be plugged and abandoned (P&A). Site and road reclamation will commence following plugging. In no case will reclamation at non-producing locations be initiated later than six (6) months from the date a well is plugged. A joint inspection of the disturbed area to be reclaimed may be requested by KMG. The primary purpose of this inspection will be to review the existing conditions, or agree upon a revised final reclamation and abandonment plan. A Notice of Intent to Abandon will be filed for final recommendations regarding surface reclamation.

After plugging, all wellhead equipment that is no longer needed will be removed, and the well site will be reclaimed. Final contouring will blend with and follow as closely as practical the natural terrain and contours of the original site and surrounding areas. After re-contouring, final grading will be conducted over the entire surface of the well site and access road. Where practical, the area will be ripped to a depth of 18 to 24 inches on 18 to 24-inch centers and surface materials will be pitted with small depressions to form longitudinal depressions 12 to 18 inches deep perpendicular to the natural flow of water.

All unnecessary surface equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation will be removed during final reclamation. Roads that will be reclaimed will be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded.

Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice will be submitted to UDOGM.

**Seeding and Measures Common to Interim and Final Reclamation**

Reclaimed areas may be fenced to exclude grazing and encourage re-vegetation.

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On slopes where severe erosion can become a problem and the use of machinery is not practical, seed will be hand broadcast and raked with twice the specified amount of seed. The slope will be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently established. These materials will include, but are not limited to, erosion control blankets and bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage.

Seeding will occur year-round as conditions allow. Seed mixes appropriate to the native plant community as determined and specified for each project location based on the site specific soils will be used for re-vegetation. The site specific seed mix will be provided by SITLA.

**J. Surface/Mineral Ownership:**

SITLA
675 East 500 South, Suite 500
Salt Lake City, UT 84102

**L. Other Information:**

None

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**M. Lessee's or Operators' Representative & Certification:**

Gina T. Becker
Regulatory Analyst II
Kerr-McGee Oil & Gas Onshore LP
PO Box 173779
Denver, CO 80217-3779
(720) 929-6086

Tommy Thompson
General Manager, Drilling
Kerr-McGee Oil & Gas Onshore LP
PO Box 173779
Denver, CO 80217-3779
(720) 929-6724

Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Kerr-McGee Oil & Gas Onshore LP is considered to be the operator of the subject well. Kerr-McGee Oil & Gas Onshore LP agrees to be responsible under terms and conditions of the lease for the operations conducted upon leased lands.

Bond coverage for State lease activities is provided by State Surety Bond 22013542, and for applicable Federal lease activities and pursuant to 43 CFR 3104, by Bureau of Land Management Nationwide Bond WYB000291.

I hereby certify that I, or persons under my supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions that currently exist; that I have full knowledge of the State and Federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Gina T.Becker

August 10, 2011
Date

**Joseph D. Johnson**
1099 18TH STREET STE. 1800 • DENVER, CO 80202
720-929-6708 • FAX 720-929-7708
E-MAIL: JOE.JOHNSON@ANADARKO.COM

August 4, 2011

Ms. Diana Mason
Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, UT 84114-6100

Re: Directional Drilling R649-3-11
NBU 1022-2O4BS
T10S-R22E
Section 2: SWSE
Surface: 221' FSL, 1392' FEL
T10S-R22E
Section 2: SWSE
Bottom Hole: 415' FSL, 1807' FEL
Uintah County, Utah

Dear Ms. Mason:

Pursuant to the filing of Kerr-McGee Oil & Gas Onshore LP's (Kerr-McGee) Application for Permit to Drill regarding the above referenced well, we are hereby submitting this letter in accordance with Oil & Gas Conservation Rule R649-3-11 pertaining to the Exception to Location and Siting of Wells.

- Kerr-McGee's NBU 1022-2O4BS is located within the Natural Buttes Unit area.
- Kerr-McGee is permitting this well as a directional well in order to minimize surface disturbance. Locating the well at the surface location and directionally drilling from this location, Kerr-McGee will be able to utilize the existing road and pipelines in the area.
- Furthermore, Kerr-McGee certifies that it is the sole working interest owner within 460 feet of the entire directional well bore.

Therefore, based on the above stated information Kerr-McGee Oil & Gas Onshore LP requests the permit be granted pursuant to R649-3-11.

Sincerely,

KERR-MCGEE OIL & GAS ONSHORE LP

Joseph D. Johnson
Landman

**RECEIVED: August 10, 2011**

# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

**Utah State Office**
**P.O. Box 45155**
**Salt Lake City, Utah 84145-0155**

**IN REPLY REFER TO:**
**3160**
**(UT-922)**

August 19, 2011

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2011 Plan of Development Natural Buttes Unit
Uintah County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following wells are planned for calendar year 2011 within the Natural Buttes Unit, Uintah County, Utah.

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| **NBU 1022-11F PAD** | | |
| 43-047-51797 | NBU 1022-11C2CS | Sec 11 T10S R22E 1860 FNL 1499 FWL<br>BHL Sec 11 T10S R22E 0370 FNL 1365 FWL |
| 43-047-51799 | NBU 1022-11C3DS | Sec 11 T10S R22E 1852 FNL 1505 FWL<br>BHL Sec 11 T10S R22E 1268 FNL 1726 FWL |
| 43-047-51800 | NBU 1022-11D1CS | Sec 11 T10S R22E 1868 FNL 1493 FWL<br>BHL Sec 11 T10S R22E 0576 FNL 0818 FWL |
| 43-047-51801 | NBU 1022-11F2DS | Sec 11 T10S R22E 1844 FNL 1512 FWL<br>BHL Sec 11 T10S R22E 1622 FNL 1625 FWL |
| **NBU 1022-11G2 PAD** | | |
| 43-047-51802 | NBU 1022-11B4CS | Sec 11 T10S R22E 1627 FNL 2594 FEL<br>BHL Sec 11 T10S R22E 1238 FNL 1803 FEL |
| 43-047-51813 | NBU 1022-11B4BS | Sec 11 T10S R22E 1633 FNL 2601 FEL<br>BHL Sec 11 T10S R22E 0908 FNL 1804 FEL |
| 43-047-51815 | NBU 1022-11B1CS | Sec 11 T10S R22E 1639 FNL 2609 FEL<br>BHL Sec 11 T10S R22E 0577 FNL 1805 FEL |
| 43-047-51817 | NBU 1022-C4AS | Sec 11 T10S R22E 1645 FNL 2617 FEL<br>BHL Sec 11 T10S R22E 0825 FNL 2462 FWL |
| 43-047-51818 | NBU 1022-11C4CS | Sec 11 T10S R22E 1651 FNL 2625 FEL<br>BHL Sec 11 T10S R22E 1071 FNL 2131 FWL |

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| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| 43-047-51855 | NBU 1022-11F4AS | Sec 11 T10S R22E 1657 FNL 2633 FEL |
| | | BHL Sec 11 T10S R22E 2138 FNL 2288 FWL |
| **NBU 1022-2A PAD** | | |
| 43-047-51803 | NBU 1022-2G1CS | Sec 02 T10S R22E 0165 FNL 0760 FEL |
| | | BHL Sec 02 T10S R22E 1905 FNL 1814 FEL |
| 43-047-51807 | NBU 1022-2G1BS | Sec 02 T10S R22E 0164 FNL 0770 FEL |
| | | BHL Sec 02 T10S R22E 1573 FNL 1815 FEL |
| 43-047-51808 | NBU 1022-2H1BS | Sec 02 T10S R22E 0167 FNL 0730 FEL |
| | | BHL Sec 02 T10S R22E 1410 FNL 0494 FEL |
| 43-047-51812 | NBU 1022-2H1CS | Sec 02 T10S R22E 0166 FNL 0740 FEL |
| | | BHL Sec 02 T10S R22E 1743 FNL 0494 FEL |
| 43-047-51825 | NBU 1022-2H4BS | Sec 02 T10S R22E 0165 FNL 0750 FEL |
| | | BHL Sec 02 T10S R22E 2074 FNL 0493 FEL |
| **NBU 1022-11G4 PAD** | | |
| 43-047-51805 | NBU 1022-11A4CS | Sec 11 T10S R22E 2411 FNL 1535 FEL |
| | | BHL Sec 11 T10S R22E 1075 FNL 0490 FEL |
| 43-047-51814 | NBU 1022-11H1BS | Sec 11 T10S R22E 2405 FNL 1526 FEL |
| | | BHL Sec 11 T10S R22E 1406 FNL 0490 FEL |
| 43-047-51822 | NBU 1022-11G4CS | Sec 11 T10S R22E 2435 FNL 1566 FEL |
| | | BHL Sec 11 T10S R22E 2559 FNL 1799 FEL |
| 43-047-51823 | NBU 1022-11G1BS | Sec 11 T10S R22E 2423 FNL 1550 FEL |
| | | BHL Sec 11 T10S R22E 1568 FNL 1802 FEL |
| 43-047-51837 | NBU 1022-11G1CS | Sec 11 T10S R22E 2417 FNL 1542 FEL |
| | | BHL Sec 11 T10S R22E 1954 FNL 1646 FEL |
| 43-047-51853 | NBU 1022-11G4BS | Sec 11 T10S R22E 2429 FNL 1558 FEL |
| | | BHL Sec 11 T10S R22E 2229 FNL 1800 FEL |
| **NBU 1022-2I PAD** | | |
| 43-047-51809 | NBU 1022-2I4CS | Sec 02 T10S R22E 1886 FSL 0949 FEL |
| | | BHL Sec 02 T10S R22E 1576 FSL 0492 FEL |
| 43-047-51810 | NBU 1022-2P1BS | Sec 02 T10S R22E 1881 FSL 0957 FEL |
| | | BHL Sec 02 T10S R22E 1245 FSL 0492 FEL |
| 43-047-51824 | NBU 1022-2I1CS | Sec 02 T10S R22E 1895 FSL 0931 FEL |
| | | BHL Sec 02 T10S R22E 2240 FSL 0493 FEL |
| 43-047-51829 | NBU 1022-2I4BS | Sec 02 T10S R22E 1890 FSL 0940 FEL |
| | | BHL Sec 02 T10S R22E 1909 FSL 0492 FEL |
| 43-047-51838 | NBU 1022-2P4BS | Sec 02 T10S R22E 1872 FSL 0975 FEL |
| | | BHL Sec 02 T10S R22E 0581 FSL 0492 FEL |
| 43-047-51852 | NBU 1022-2P1CS | Sec 02 T10S R22E 1877 FSL 0966 FEL |
| | | BHL Sec 02 T10S R22E 0913 FSL 0492 FEL |
| **NBU 1022-2B PAD** | | |
| 43-047-51811 | NBU 1022-2B1CS | Sec 02 T10S R22E 0544 FNL 1813 FEL |
| | | BHL Sec 02 T10S R22E 0579 FNL 1818 FEL |

**RECEIVED: August 22, 2011**

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| 43-047-51827 | NBU 1022-2B4CS | Sec 02 T10S R22E 0543 FNL 1793 FEL |
| | | BHL Sec 02 T10S R22E 1242 FNL 1816 FEL |
| 43-047-51828 | NBU 1022-2B4BS | Sec 02 T10S R22E 0543 FNL 1803 FEL |
| | | BHL Sec 02 T10S R22E 0910 FNL 1817 FEL |
| 43-047-51830 | NBU 1022-2C1BS | Sec 02 T10S R22E 0544 FNL 1823 FEL |
| | | BHL Sec 02 T10S R22E 0090 FNL 2158 FWL |
| **NBU 1022-11J PAD** | | |
| 43-047-51816 | NBU 1022-11K4BS | Sec 11 T10S R22E 1980 FSL 2131 FEL |
| | | BHL Sec 11 T10S R22E 1804 FSL 1963 FWL |
| 43-047-51843 | NBU 1022-11J1CS | Sec 11 T10S R22E 1990 FSL 2130 FEL |
| | | BHL Sec 11 T10S R22E 2065 FSL 1797 FEL |
| 43-047-51851 | NBU 1022-11J1BS | Sec 11 T10S R22E 2000 FSL 2129 FEL |
| | | BHL Sec 11 T10S R22E 2395 FSL 1798 FEL |
| **NBU 1022-2J PAD** | | |
| 43-047-51819 | NBU 1022-2G4CS | Sec 02 T10S R22E 2375 FSL 1639 FEL |
| | | BHL Sec 02 T10S R22E 2568 FNL 1813 FEL |
| 43-047-51820 | NBU 1022-2H4CS | Sec 02 T10S R22E 2351 FSL 1584 FEL |
| | | BHL Sec 02 T10S R22E 2406 FNL 0493 FEL |
| 43-047-51844 | NBU 1022-2J4BS | Sec 02 T10S R22E 2367 FSL 1621 FEL |
| | | BHL Sec 02 T10S R22E 1741 FSL 1811 FEL |
| 43-047-51845 | NBU 1022-2O1CS | Sec 02 T10S R22E 2343 FSL 1566 FEL |
| | | BHL Sec 02 T10S R22E 0747 FSL 1808 FEL |
| 43-047-51847 | NBU 1022-2I1BS | Sec 02 T10S R22E 2347 FSL 1575 FEL |
| | | BHL Sec 02 T10S R22E 2572 FSL 0493 FEL |
| 43-047-51854 | NBU 1022-2G4BS | Sec 02 T10S R22E 2359 FSL 1602 FEL |
| | | BHL Sec 02 T10S R22E 2237 FNL 1814 FEL |
| **NBU 1022-O1 PAD** | | |
| 43-047-51821 | NBU 1022-11O1CS | Sec 11 T10S R22E 0944 FSL 1360 FEL |
| | | BHL Sec 11 T10S R22E 0744 FSL 1793 FEL |
| 43-047-51831 | NBU 1022-11O4CS | Sec 11 T10S R22E 0925 FSL 1366 FEL |
| | | BHL Sec 11 T10S R22E 0079 FSL 1824 FEL |
| 43-047-51832 | NBU 1022-11P1BS | Sec 11 T10S R22E 0973 FSL 1351 FEL |
| | | BHL Sec 11 T10S R22E 1068 FSL 0474 FEL |
| 43-047-51833 | NBU 1022-11P4BS | Sec 11 T10S R22E 0954 FSL 1357 FEL |
| | | BHL Sec 11 T10S R22E 0456 FSL 0504 FEL |
| 43-047-51836 | NBU 1022-12M1BS | Sec 11 T10S R22E 0963 FSL 1354 FEL |
| | | BHL Sec 12 T10S R22E 1077 FSL 0824 FWL |
| 43-047-51856 | NBU 1022-11O4BS | Sec 11 T10S R22E 0935 FSL 1363 FEL |
| | | BHL Sec 11 T10S R22E 0413 FSL 1792 FEL |

**RECEIVED: August 22, 2011**

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| **NBU 1022-11I1 PAD** | | |
| 43-047-51834 | NBU 1022-11I1CS | Sec 11 T10S R22E 2545 FSL 0532 FEL |
| | | BHL Sec 11 T10S R22E 2112 FSL 0481 FEL |
| 43-047-51835 | NBU 1022-12L1CS | Sec 11 T10S R22E 2554 FSL 0528 FEL |
| | | BHL Sec 12 T10S R22E 2070 0FSL 823 FWL |
| 43-047-51857 | NBU 1022-11H4BS | Sec 11 T10S R22E 2582 FSL 0518 FEL |
| | | BHL Sec 11 T10S R22E 2067 FNL 0489 FEL |
| 43-047-51858 | NBU 1022-11H4CS | Sec 11 T10S R22E 2592 FSL 0514 FEL |
| | | BHL Sec 11 T10S R22E 2398 FNL 0489 FEL |
| 43-047-51861 | NBU 1022-12L1BS | Sec 11 T10S R22E 2564 FSL 0525 FEL |
| | | BHL Sec 12 T10S R22E 2401 FSL 0822 FWL |
| 43-047-51863 | NBU 1022-11H1CS | Sec 11 T10S R22E 2573 FSL 0521 FEL |
| | | BHL Sec 11 T10S R22E 1737 FNL 0490 FEL |
| **NBU 1022-2P PAD** | | |
| 43-047-51839 | NBU 1022-2P4CS | Sec 02 T10S R22E 0221 FSL 1342 FEL |
| | | BHL Sec 02 T10S R22E 0255 FSL 0496 FEL |
| 43-047-51841 | NBU 1022-11B1BS | Sec 02 T10S R22E 0221 FSL 1382 FEL |
| | | BHL Sec 11 T10S R22E 0280 FNL 1755 FEL |
| 43-047-51842 | NBU 1022-11A1BS | Sec 02 T10S R22E 0221 FSL 1352 FEL |
| | | BHL Sec 11 T10S R22E 0080 FNL 0473 FEL |
| 43-047-51846 | NBU 1022-2O4CS | Sec 02 T10S R22E 0220 FSL 1402 FEL |
| | | BHL Sec 02 T10S R22E 0095 FSL 1804 FEL |
| 43-047-51848 | NBU 1022-11A4BS | Sec 02 T10S R22E 0221 FSL 1372 FEL |
| | | BHL Sec 11 T10S R22E 0744 FNL 0490 FEL |
| 43-047-51849 | NBU 1022-2O4BS | Sec 02 T10S R22E 0221 FSL 1392 FEL |
| | | BHL Sec 02 T10S R22E 0415 FSL 1807 FEL |
| 43-047-51850 | NBU 1022-11A1CS | Sec 02 T10S R22E 0221 FSL 1362 FEL |
| | | BHL Sec 11 T10S R22E 0413 FNL 0491 FEL |
| **NBU 1022-14A PAD** | | |
| 43-047-51840 | NBU 1022-11P4CS | Sec 14 T10S R22E 0379 FNL 1228 FEL |
| | | BHL Sec 11 T10S R22E 0088 FSL 0466 FEL |
| 43-047-51860 | NBU 1022-12M1CS | Sec 14 T10S R22E 0385 FNL 1236 FEL |
| | | BHL Sec 12 T10S R22E 0746 FSL 0825 FWL |
| 43-047-51868 | NBU 1022-12M4BS | Sec 14 T10S R22E 0391 FNL 1244 FEL |
| | | BHL Sec 12 T10S R22E 0415 FSL 0825 FWL |
| 43-047-51870 | NBU 1022-12M4CS | Sec 14 T10S R22E 0397 FNL 1252 FEL |
| | | BHL Sec 12 T10S R22E 0086 FSL 0819 FWL |
| **NBU 1022-11O2 PAD** | | |
| 43-047-51859 | NBU 1022-11K4CS | Sec 11 T10S R22E 1103 FSL 2372 FEL |
| | | BHL Sec 11 T10S R22E 1442 FSL 2113 FWL |

**RECEIVED: August 22, 2011**

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| 43-047-51862 | NBU 1022-11N1BS | Sec 11 T10S R22E 1094 FSL 2377 FEL |
| | | BHL Sec 11 T10S R22E 1111 FSL 2105 FWL |
| 43-047-51864 | NBU 1022-11N1CS | Sec 11 T10S R22E 1085 FSL 2382 FEL |
| | | BHL Sec 11 T10S R22E 0801 FSL 2127 FWL |
| 43-047-51865 | NBU 1022-11N4BS | Sec 11 T10S R22E 1077 FSL 2387 FEL |
| | | BHL Sec 11 T10S R22E 0462 FSL 2127 FWL |
| 43-047-51867 | NBU 1022-11N4CS | Sec 11 T10S R22E 1068 FSL 2392 FEL |
| | | BHL Sec 11 T10S R22E 0146 FSL 2084 FWL |
| 43-047-51869 | NBU 1022-11O2AS | Sec 11 T10S R22E 1111 FSL 2367 FEL |
| | | BHL Sec 11 T10S R22E 1102 FSL 1964 FEL |
| **NBU 1022-11I3 PAD** | | |
| 43-047-51866 | NBU 1022-11I4BS | Sec 11 T10S R22E 1489 FSL 0996 FEL |
| | | BHL Sec 11 T10S R22E 1774 FSL 0485 FEL |
| 43-047-51871 | NBU 1022-11I4CS | Sec 11 T10S R22E 1459 FSL 0997 FEL |
| | | BHL Sec 11 T10S R22E 1443 FSL 0497 FEL |
| 43-047-51872 | NBU 1022-12L4BS | Sec 11 T10S R22E 1479 FSL 0996 FEL |
| | | BHL Sec 12 T10S R22E 1739 FSL 0823 FWL |
| 43-047-51873 | NBU 1022-12L4CS | Sec 11 T10S R22E 1469 FSL 0996 FEL |
| | | BHL Sec 12 T10S R22E 1408 FSL 0824 FWL |

This office has no objection to permitting the wells at this time.

Michael L. Coulthard

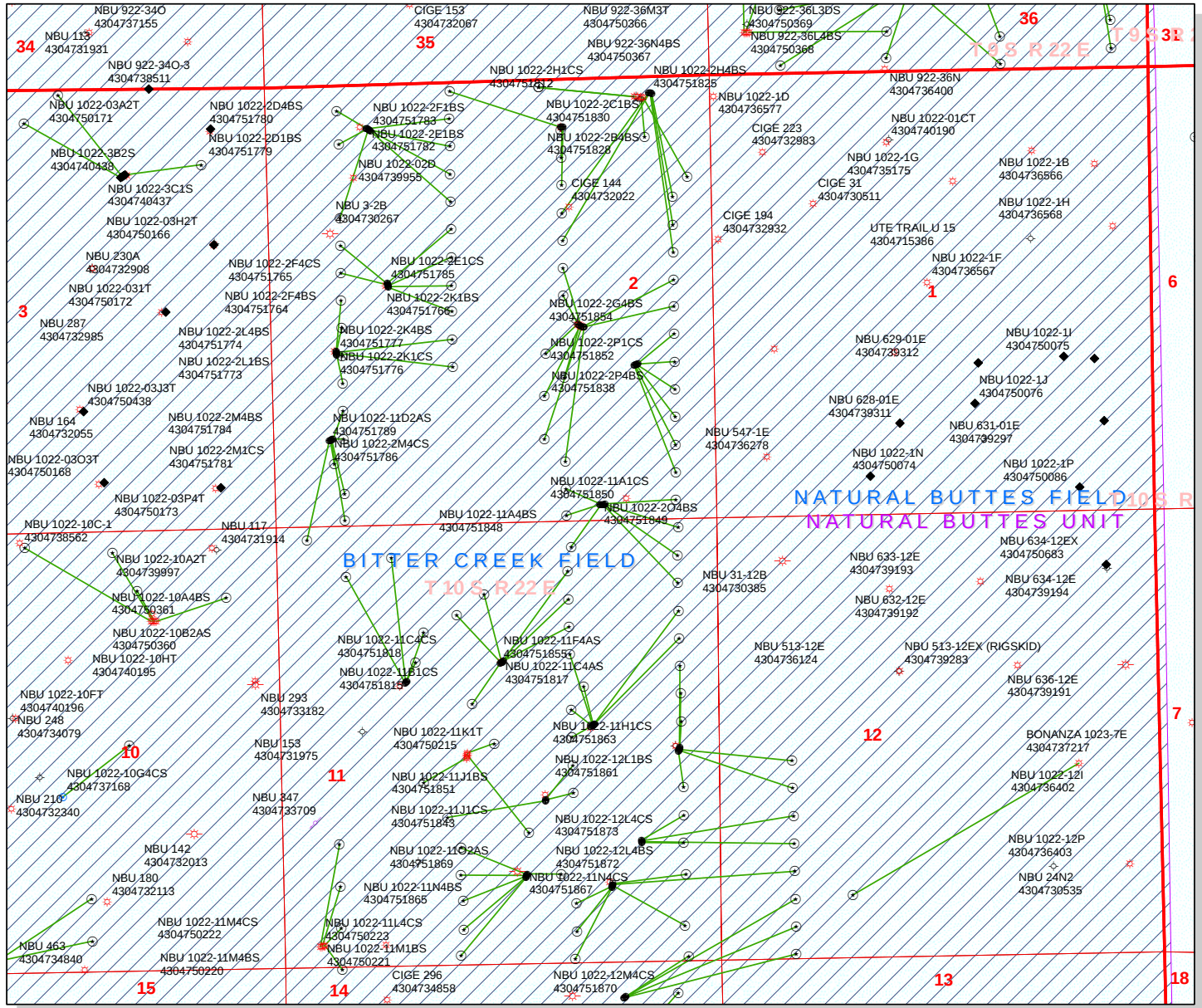
Digitally signed by Michael L. Coulthard
DN: cn=Michael L. Coulthard, o=Bureau of Land Management, ou=Branch of Minerals, email=Michael_Coulthard@blm.gov, c=US
Date: 2011.08.19 08:43:17 -06'00'

bcc: File - Natural Buttes Unit
Division of Oil Gas and Mining
Central Files
Agr. Sec. Chron
Fluid Chron

MCoulthard:mc:8-19-11

**RECEIVED: August 22, 2011**

API Well Number: 43047518490000




**API Number: 4304751849**

**Well Name: NBU 1022-2O4BS**

**Township T1.0 . Range R2.2 . Section 02**

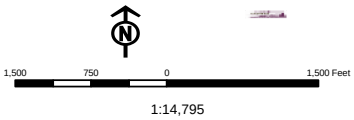
**Meridian: SLBM**

Operator: KERR-MCGEE OIL & GAS ONSHORE, L.P.

Map Prepared:
Map Produced by Diana Mason

Units
STATUS
ACTIVE
EXPLORATORY
GAS STORAGE
NF PP OIL
NF SECONDARY
PI OIL
PP GAS
PP GEOTHERML
PP OIL
SECONDARY
TERMINATED
Fields
STATUS
Unknown
ABANDONED
ACTIVE
COMBINED
INACTIVE
STORAGE
TERMINATED
Sections
Township

Wells Query
Status
APD - Aproved Permit
DRL - Spuded (Drilling Commenced)
GIW - Gas Injection
GS - Gas Storage
LA - Location Abandoned
LOC - New Location
OPS - Operation Suspended
PA - Plugged Abandoned
PGW - Producing Gas Well
POW - Producing Oil Well
RET - Returned APD
SGW - Shut-in Gas Well
SOW - Shut-in Oil Well
TA - Temp. Abandoned
TW - Test Well
WDW - Water Disposal
WIW - Water Injection Well
WSW - Water Supply Well


1:14,795

**RECEIVED: August 22, 2011**

**From:** Jim Davis
**To:** Hill, Brad; Mason, Diana
**CC:** Bonner, Ed; Garrison, LaVonne; Lytle, Andy
**Date:** 9/26/2011 5:08 PM
**Subject:** Anadarko APD approvals 10S 22E Sec 2, 11 and 14
**Attachments:** Anadarko Approvals from SITLA 9.26.11.xls

The following APDs have been approved by SITLA including arch clearance and paleo clearance:

| | |
|---|---|
| 4304751840 | NBU 1022-11P4CS |
| 4304751860 | NBU 1022-12M1CS |
| 4304751868 | NBU 1022-12M4BS |
| 4304751870 | NBU 1022-12M4CS |
| 4304751803 | NBU 1022-2G1CS |
| 4304751807 | NBU 1022-2G1BS |
| 4304751808 | NBU 1022-2H1BS |
| 4304751812 | NBU 1022-2H1CS |
| 4304751825 | NBU 1022-2H4BS |
| 4304751811 | NBU 1022-2B1CS |
| 4304751827 | NBU 1022-2B4CS |
| 4304751828 | NBU 1022-2B4BS |
| 4304751830 | NBU 1022-2C1BS |
| 4304751809 | NBU 1022-2I4CS |
| 4304751810 | NBU 1022-2P1BS |
| 4304751824 | NBU 1022-2I1CS |
| 4304751829 | NBU 1022-2I4BS |
| 4304751838 | NBU 1022-2P4BS |
| 4304751852 | NBU 1022-2P1CS |
| 4304751839 | NBU 1022-2P4CS |
| 4304751841 | NBU 1022-11B1BS |
| 4304751842 | NBU 1022-11A1BS |
| 4304751846 | NBU 1022-2O4CS |
| 4304751848 | NBU 1022-11A4BS |
| 4304751849 | NBU 1022-2O4BS |
| 4304751850 | NBU 1022-11A1CS |

These APDS are approved including arch clearance but will require **spot paleo monitoring** as recommended in the applicable paleo reports:

| | |
|---|---|
| 4304751758 | NBU 1022-2C1CS |
| 4304751767 | NBU 1022-2C4BS |
| 4304751768 | NBU 1022-2C4CS |
| 4304751779 | NBU 1022-2D1BS |
| 4304751780 | NBU 1022-2D4BS |
| 4304751782 | NBU 1022-2E1BS |
| 4304751783 | NBU 1022-2F1BS |
| 4304751760 | NBU 1022-2E4BS |
| 4304751761 | NBU 1022-2F1CS |
| 4304751764 | NBU 1022-2F4BS |
| 4304751765 | NBU 1022-2F4CS |
| 4304751766 | NBU 1022-2K1BS |
| 4304751785 | NBU 1022-2E1CS |
| 4304751775 | NBU 1022-2L4CS |
| 4304751778 | NBU 1022-2M1BS |
| 4304751781 | NBU 1022-2M1CS |
| 4304751784 | NBU 1022-2M4BS |
| 4304751786 | NBU 1022-2M4CS |
| 4304751789 | NBU 1022-11D2AS |

**RECEIVED: September 27, 2011**

| | |
|---|---|
| 4304751802 | NBU 1022-11B4CS |
| 4304751813 | NBU 1022-11B4BS |
| 4304751815 | NBU 1022-11B1CS |
| 4304751817 | NBU 1022-11C4AS |
| 4304751818 | NBU 1022-11C4CS |
| 4304751855 | NBU 1022-11F4AS |
| 4304751805 | NBU 1022-11A4CS |
| 4304751814 | NBU 1022-11H1BS |
| 4304751822 | NBU 1022-11G4CS |
| 4304751823 | NBU 1022-11G1BS |
| 4304751837 | NBU 1022-11G1CS |
| 4304751853 | NBU 1022-11G4BS |
| 4304751834 | NBU 1022-11I1CS |
| 4304751835 | NBU 1022-12L1CS |
| 4304751857 | NBU 1022-11H4BS |
| 4304751858 | NBU 1022-11H4CS |
| 4304751861 | NBU 1022-12L1BS |
| 4304751863 | NBU 1022-11H1CS |
| 4304751866 | NBU 1022-11I4BS |
| 4304751871 | NBU 1022-11I4CS |
| 4304751872 | NBU 1022-12L4BS |
| 4304751873 | NBU 1022-12L4CS |
| 4304751816 | NBU 1022-11K4BS |
| 4304751843 | NBU 1022-11J1CS |
| 4304751851 | NBU 1022-11J1BS |
| 4304751859 | NBU 1022-11K4CS |
| 4304751862 | NBU 1022-11N1BS |
| 4304751864 | NBU 1022-11N1CS |
| 4304751865 | NBU 1022-11N4BS |
| 4304751867 | NBU 1022-11N4CS |
| 4304751869 | NBU 1022-11O2AS |

These APDS are approved including arch clearance but will require **full paleo monitoring** as recommended in the applicable paleo reports:

| | |
|---|---|
| 4304751771 | NBU 1022-2E4CS |
| 4304751772 | NBU 1022-2L1CS |
| 4304751773 | NBU 1022-2L1BS |
| 4304751774 | NBU 1022-2L4BS |
| 4304751776 | NBU 1022-2K1CS |
| 4304751777 | NBU 1022-2K4BS |
| 4304751819 | NBU 1022-2G4CS |
| 4304751820 | NBU 1022-2H4CS |
| 4304751844 | NBU 1022-2J4BS |
| 4304751845 | NBU 1022-2O1CS |
| 4304751847 | NBU 1022-2I1BS |
| 4304751854 | NBU 1022-2G4BS |
| 4304751797 | NBU 1022-11C2CS |
| 4304751799 | NBU 1022-11C3DS |
| 4304751800 | NBU 1022-11D1CS |
| 4304751801 | NBU 1022-11F2DS |
| 4304751821 | NBU 1022-11O1CS |
| 4304751831 | NBU 1022-11O4CS |
| 4304751832 | NBU 1022-11P1BS |
| 4304751833 | NBU 1022-11P4BS |
| 4304751836 | NBU 1022-12M1BS |
| 4304751856 | NBU 1022-11O4BS |

**RECEIVED: September 27, 2011**

That's a big enough list that I'm including a simple spreadsheet that has this same information, but organized in such a way as may be more useful to some of you.
Thanks.
-Jim

Jim Davis
Utah Trust Lands Administration
jimdavis1@utah.gov
Phone: (801) 538-5156

**RECEIVED: September 27, 2011**

API Well Number: 43047518490000

**BOPE REVIEW KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-2O4BS 43047518490000**

| Well Name | KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-2O4BS | | | |
|---|---|---|---|---|
| String | Surf | Prod | | |
| Casing Size(") | 8.625 | 4.500 | | |
| Setting Depth (TVD) | 2136 | 8554 | | |
| Previous Shoe Setting Depth (TVD) | 40 | 2136 | | |
| Max Mud Weight (ppg) | 8.3 | 12.5 | | |
| BOPE Proposed (psi) | 500 | 5000 | | |
| Casing Internal Yield (psi) | 3390 | 7780 | | |
| Operators Max Anticipated Pressure (psi) | 5475 | 12.3 | | |

| Calculations | Surf String | 8.625 | " | |
|---|---|---|---|---|
| Max BHP (psi) | .052*Setting Depth*MW= | 922 | | |
| | | | BOPE Adequate For Drilling And Setting Casing at Depth? | |
| MASP (Gas) (psi) | Max BHP-(0.12*Setting Depth)= | 666 | NO | air drill |
| MASP (Gas/Mud) (psi) | Max BHP-(0.22*Setting Depth)= | 452 | YES | OK |
| | | | *Can Full Expected Pressure Be Held At Previous Shoe? | |
| Pressure At Previous Shoe | Max BHP-.22*(Setting Depth - Previous Shoe Depth)= | 461 | NO | Reasonable depth in area |
| Required Casing/BOPE Test Pressure= | | 2136 | psi | |
| *Max Pressure Allowed @ Previous Casing Shoe= | | 40 | psi | *Assumes 1psi/ft frac gradient |

| Calculations | Prod String | 4.500 | " | |
|---|---|---|---|---|
| Max BHP (psi) | .052*Setting Depth*MW= | 5560 | | |
| | | | BOPE Adequate For Drilling And Setting Casing at Depth? | |
| MASP (Gas) (psi) | Max BHP-(0.12*Setting Depth)= | 4534 | YES | |
| MASP (Gas/Mud) (psi) | Max BHP-(0.22*Setting Depth)= | 3678 | YES | OK |
| | | | *Can Full Expected Pressure Be Held At Previous Shoe? | |
| Pressure At Previous Shoe | Max BHP-.22*(Setting Depth - Previous Shoe Depth)= | 4148 | NO | Reasonable |
| Required Casing/BOPE Test Pressure= | | 5000 | psi | |
| *Max Pressure Allowed @ Previous Casing Shoe= | | 2136 | psi | *Assumes 1psi/ft frac gradient |

| Calculations | String | | " | |
|---|---|---|---|---|
| Max BHP (psi) | .052*Setting Depth*MW= | | | |
| | | | BOPE Adequate For Drilling And Setting Casing at Depth? | |
| MASP (Gas) (psi) | Max BHP-(0.12*Setting Depth)= | | NO | |
| MASP (Gas/Mud) (psi) | Max BHP-(0.22*Setting Depth)= | | NO | |
| | | | *Can Full Expected Pressure Be Held At Previous Shoe? | |
| Pressure At Previous Shoe | Max BHP-.22*(Setting Depth - Previous Shoe Depth)= | | NO | |
| Required Casing/BOPE Test Pressure= | | | psi | |
| *Max Pressure Allowed @ Previous Casing Shoe= | | | psi | *Assumes 1psi/ft frac gradient |

| Calculations | String | | " | |
|---|---|---|---|---|
| Max BHP (psi) | .052*Setting Depth*MW= | | | |
| | | | BOPE Adequate For Drilling And Setting Casing at Depth? | |
| MASP (Gas) (psi) | Max BHP-(0.12*Setting Depth)= | | NO | |
| MASP (Gas/Mud) (psi) | Max BHP-(0.22*Setting Depth)= | | NO | |
| | | | *Can Full Expected Pressure Be Held At Previous Shoe? | |
| Pressure At Previous Shoe | Max BHP-.22*(Setting Depth - Previous Shoe Depth)= | | NO | |
| Required Casing/BOPE Test Pressure= | | | psi | |

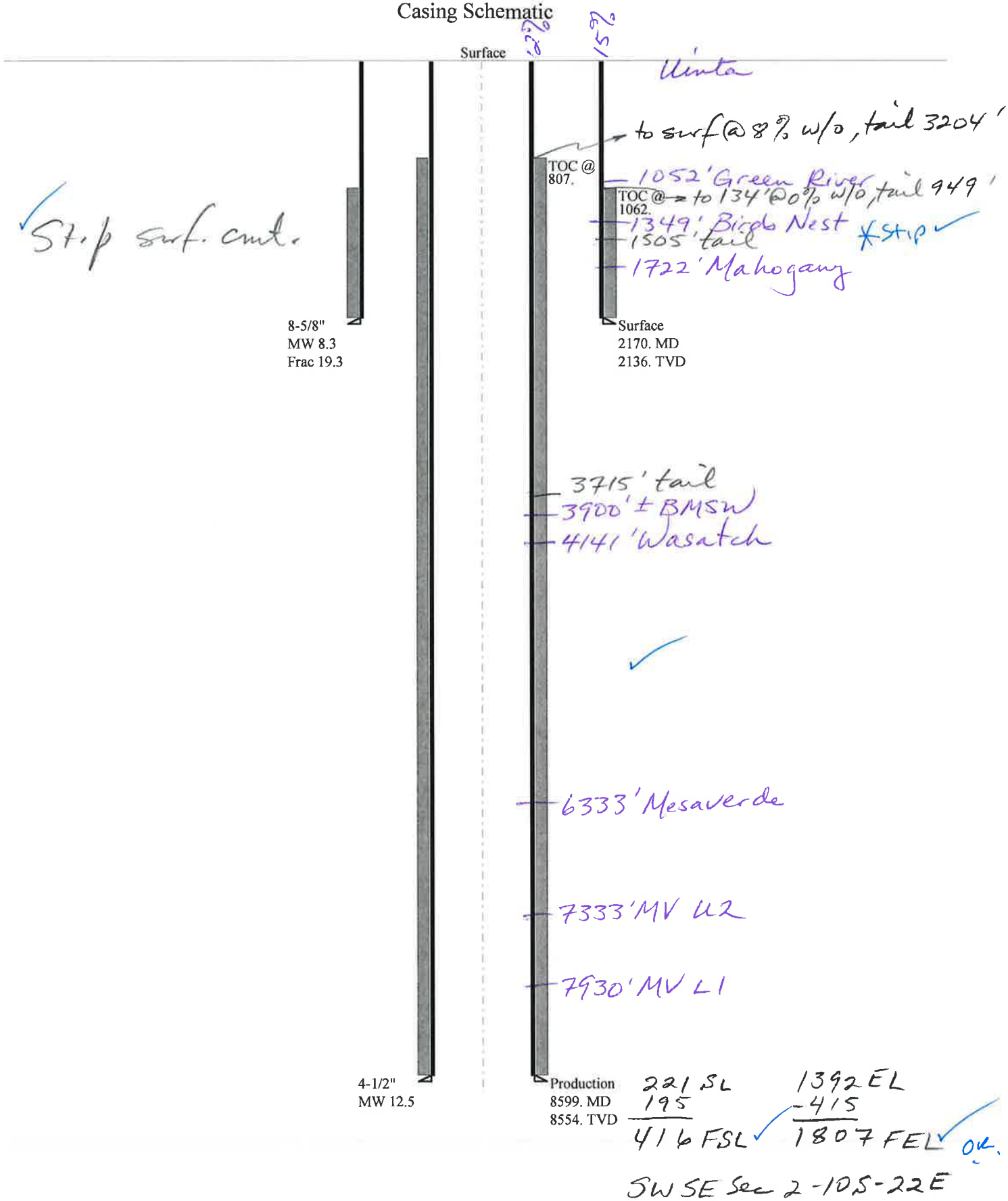
**RECEIVED: October 25, 2011**

| | | |
|---|---|---|
| ***Max Pressure Allowed @ Previous Casing Shoe=** | | psi *Assumes 1psi/ft frac gradient |

**RECEIVED: October 25, 2011**

# 43047518490000 NBU 1022-2O4BS

## Casing Schematic



| | |
|---|---|
| Well name: | **43047518490000 NBU 1022-2O4BS** |
| Operator: | **KERR-MCGEE OIL & GAS ONSHORE, L.P.** |
| String type: | Surface |
| Project ID: | 43-047-51849 |
| Location: | UINTAH COUNTY |

**Design parameters:**

**Collapse**
Mud weight: 8.330 ppg
Design is based on evacuated pipe.

**Burst**
Max anticipated surface pressure: 1,910 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 2,166 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**
Design factor 1.125

**Burst:**
Design factor 1.00

**Tension:**
8 Round STC: 1.80 (J)
8 Round LTC: 1.70 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on air weight.
Neutral point: 1,901 ft

**Environment:**
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 104 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 100 ft

Cement top: 1,062 ft

**Directional Info - Build & Drop**
Kick-off point 300 ft
Departure at shoe: 334 ft
Maximum dogleg: 2 °/100ft
Inclination at shoe: 12.35 °

**Re subsequent strings:**
Next setting depth: 8,599 ft
Next mud weight: 12.500 ppg
Next setting BHP: 5,584 psi
Fracture mud wt: 19.250 ppg
Fracture depth: 2,170 ft
Injection pressure: 2,170 psi

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2170 | 8.625 | 28.00 | I-55 | LT&C | 2136 | 2170 | 7.892 | 85932 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 924 | 1880 | 2.034 | 2166 | 3390 | 1.57 | 59.8 | 348 | 5.82 J |

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: October 14,2011
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 2136 ft, a mud weight of 8.33 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.
Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

| | |
|---|---|
| Well name: | **43047518490000 NBU 1022-2O4BS** |
| Operator: | **KERR-MCGEE OIL & GAS ONSHORE, L.P.** |
| String type: | Production |
| Project ID: | 43-047-51849 |
| Location: | UINTAH COUNTY |

**Design parameters:**

**Collapse**
Mud weight: 12.500 ppg
Design is based on evacuated pipe.

**Burst**
Max anticipated surface pressure: 3,673 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 5,555 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**
Design factor 1.125

**Burst:**
Design factor 1.00

**Tension:**
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on air weight.
Neutral point: 7,000 ft

**Environment:**
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 194 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 100 ft

Cement top: 807 ft

**Directional Info - Build & Drop**
Kick-off point 300 ft
Departure at shoe: 458 ft
Maximum dogleg: 2 °/100ft
Inclination at shoe: 0 °

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8599 | 4.5 | 11.60 | I-80 | LT&C | 8554 | 8599 | 3.875 | 113505 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5555 | 6360 | 1.145 | 5555 | 7780 | 1.40 | 99.2 | 212 | 2.14 J |

Prepared by: Helen Sadik-Macdonald, Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: October 14,2011
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 8554 ft, a mud weight of 12.5 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.
Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

# ON-SITE PREDRILL EVALUATION
## Utah Division of Oil, Gas and Mining

| | | | | | |
|---|---|---|---|---|---|
| **Operator** | KERR-MCGEE OIL & GAS ONSHORE, L.P. | | | | |
| **Well Name** | NBU 1022-2O4BS | | | | |
| **API Number** | 43047518490000 | **APD No** | 4395 | **Field/Unit** | NATURAL BUTTES |
| **Location: 1/4,1/4** | SWSE **Sec** 2 **Tw** 10.0S **Rng** 22.0E 221 FSL 1392 FEL | | | | |
| **GPS Coord (UTM)** | 636481 4425590 | **Surface Owner** | | | |

**Participants**

Andy Lytle, Sheila Wopsock, Charles Chase, Grizz Oleen, Mark Kuehn, Doyle Holmes, (Kerr McGee). John Slaugh, Mitch Batty, (Timberline ). Jim Davis (SITLA). David Hackford, (DOGM).

**Regional/Local Setting & Topography**

The general area is in the southeast portion of the Natural Buttes Unit . Within this area is the White River and rugged drainages that drain into it. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River is approx. 1100 feet to the southwest. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 40 air miles to the northwest. Access from Vernal is approximately 47.6 road miles following Utah State, Uintah County and oilfield development roads. Six wells, in addition to this one (for a total of seven) will be directionally drilled from this pad. This proposed location will be a new pad. The CIGE 161 location is directly to the east of this site, but this location is not adequate for seven additional wells.. A 410 foot access road will be constructed. The proposed location will run in an east-west direction along the top of a flat topped ridge. This ridge breaks off sharply into rugged secondary canyons especially on the south side. A shallow draw coming to this site from the north will be re-routed around the location. The reserve pit will be on the south side of the location and the excess cut stockpile will be on the south and west sides of the location. The pad should be stable and should be a suitable location for seven wells, and is on the best site available in the immediate area.

**Surface Use Plan**

**Current Surface Use**
Wildlfe Habitat

| **New Road Miles** | **Well Pad** | **Src Const Material** | **Surface Formation** |
|---|---|---|---|
| 0.13 | **Width** 332 **Length** 425 | Onsite | UNTA |

**Ancillary Facilities** N

**Waste Management Plan Adequate?** Y

**Environmental Parameters**

**Affected Floodplains and/or Wetlands** N

**Flora / Fauna**

Prickly pear, wild onion, shadscale, mat saltbrush, Indian ricegrass, halogeton, pepper grass, annuals and curly Vegetation is a salt desert shrub type. Principal species present are cheatgrass, black sagebrush, stipa, mesquite grass.

Sheep, antelope, raptors and small mammals and birds.

**Soil Type and Characteristics**

Shallow rocky sandy loam.

**Erosion Issues** Y

Fill on north side of location will be compacted during construction.

**Sedimentation Issues** N

**Site Stability Issues** N

**Drainage Diverson Required?** Y

Shallow draw coming into location from the north will be re-routed.

**Berm Required?**

**Erosion Sedimentation Control Required?** N

| Paleo Survey Run? | Paleo Potental Observed? | Cultural Survey Run? | Cultural Resources? |
|---|---|---|---|

## Reserve Pit

| Site-Specific Factors | | Site Ranking | |
|---|---|---|---|
| **Distance to Groundwater (feet)** | 100 to 200 | 5 | |
| **Distance to Surface Water (feet)** | >1000 | 0 | |
| **Dist. Nearest Municipal Well (ft)** | >5280 | 0 | |
| **Distance to Other Wells (feet)** | | 20 | |
| **Native Soil Type** | Mod permeability | 10 | |
| **Fluid Type** | Fresh Water | 5 | |
| **Drill Cuttings** | Normal Rock | 0 | |
| **Annual Precipitation (inches)** | | 0 | |
| **Affected Populations** | | | |
| **Presence Nearby Utility Conduits** | Not Present | 0 | |
| | **Final Score** | 40 | 1 Sensitivity Level |

**Characteristics / Requirements**

The reserve pit is planned in an area of cut on the south side of the location. Dimensions are 100’ x 260’ x 12’ deep with 2’ of freeboard. Kerr McGee agreed to line the pit with a 30-mil liner and 2 layers of felt.

**Closed Loop Mud Required?** N **Liner Required?** Y **Liner Thickness** 30 **Pit Underlayment Required?** Y

## Other Observations / Comments

Of the seven wells being drilled from this pad, four will have well bores that leave section two and produce from section eleven to the south. These four are the NBU 1022-11A1BS, NBU 1022-11A1CS, NBU 1022-11A4BS and the NBU 1022-11B1BS.

| David Hackford | 8/18/2011 |
|---|---|
| **Evaluator** | **Date / Time** |

# Application for Permit to Drill
# Statement of Basis



| APD No | API WellNo | Status | Well Type | Surf Owner | CBM |
|---|---|---|---|---|---|
| 4395 | 43047518490000 | SITLA | GW | S | No |
| **Operator** | KERR-MCGEE OIL & GAS ONSHORE, L.P. | | **Surface Owner-APD** | | |
| **Well Name** | NBU 1022-2O4BS | | **Unit** | NATURAL BUTTES | |
| **Field** | NATURAL BUTTES | | **Type of Work** | DRILL | |
| **Location** | SWSE 2 10S 22E S 221 FSL 1392 FEL | | GPS Coord (UTM) | 636394E 4425791N | |

**Geologic Statement of Basis**

Kerr McGee proposes to set 2,170’ of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 3,900'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 2. The surface formation at this site is the Uinta Formation. The Uinta Formation is made up of interbedded shales and sandstones. The sandstones are mostly lenticular and discontinuous and should not be a significant source of useable ground water. Production casing cement should be brought up above the base of the moderately saline ground water to isolate it from fresher waters uphole.

| Brad Hill | 9/1/2011 |
|---|---|
| **APD Evaluator** | **Date / Time** |

**Surface Statement of Basis**

The general area is in the southeast portion of the Natural Buttes Unit. Within this area is the White River and rugged drainages that drain into it. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River is 1100’ to the southwest. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 40 air miles to the northwest. Access from Vernal is approximately 47.6 road miles following Utah State, Uintah County and oilfield development roads. A 410’ access road will be constructed.

Seven wells will be directionally drilled from this location. They are the NBU 1022-2P4CS, NBU 1022-11A1BS, NBU 1022-11A1CS, NBU 1022-11A4BS, NBU 1022-11B1BS, NBU 1022-2O4BS, and the NBU 1022-2O4CS. The proposed location is on the point of a flat topped ridge that runs in an east-west direction. This ridge breaks off sharply into rugged secondary canyons especially to the south. A shallow drainage enters the proposed site from the north and will be re-routed around the location.. The pad as constructed should be stable and sufficient for seven wells, and is the best site in the immediate area.

Excess material will be stockpiled on the west side of the reserve pit The north side of location will be fill and will be compacted during construction..

Both the surface and minerals are owned by SITLA. Jim Davis of SITLA and Ben Williams with DWR were invited by email to the pre-site evaluation. Jim Davis was present. Kerr McGee was told to consult with SITLA for reclamation standards including seeding mixes to be used.

| David Hackford | 8/18/2011 |
|---|---|
| **Onsite Evaluator** | **Date / Time** |

**Conditions of Approval / Application for Permit to Drill**

| Category | Condition |
|---|---|
| Pits | A synthetic liner with a minimum thickness of 30 mils with a felt subliner shall be properly installed and maintained in the reserve pit. |

RECEIVED: October 27, 2011

# Application for Permit to Drill
# Statement of Basis



| | |
|---|---|
| Pits | The reserve pit should be located on the south side of the location. |
| Surface | Drainages adjacent to the proposed pad shall be diverted around the location. |

**RECEIVED:** October 27, 2011

# WORKSHEET
# APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 8/10/2011 **API NO. ASSIGNED:** 43047518490000
**WELL NAME:** NBU 1022-2O4BS
**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995) **PHONE NUMBER:** 720 929-6086
**CONTACT:** Gina Becker

**PROPOSED LOCATION:** SWSE 02 100S 220E **Permit Tech Review:** ☑

**SURFACE:** 0221 FSL 1392 FEL **Engineering Review:** ☑

**BOTTOM:** 0415 FSL 1807 FEL **Geology Review:** ☑

**COUNTY:** UINTAH
**LATITUDE:** 39.97128 **LONGITUDE:** -109.40283
**UTM SURF EASTINGS:** 636394.00 **NORTHINGS:** 4425791.00
**FIELD NAME:** NATURAL BUTTES
**LEASE TYPE:** 3 - State
**LEASE NUMBER:** ST UT ML 22651 **PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE
**SURFACE OWNER:** 3 - State **COALBED METHANE:** NO

**RECEIVED AND/OR REVIEWED:**

- ☑ **PLAT**
- ☑ **Bond:** STATE/FEE - 22013542
- ☐ **Potash**
- ☑ **Oil Shale 190-5**
- ☐ **Oil Shale 190-3**
- ☐ **Oil Shale 190-13**
- ☑ **Water Permit:** 43-8496
- ☐ **RDCC Review:**
- ☐ **Fee Surface Agreement**
- ☑ **Intent to Commingle**

**Commingling Approved**

**LOCATION AND SITING:**

- ☐ **R649-2-3.**

**Unit:** NATURAL BUTTES

- ☐ **R649-3-2. General**
- ☐ **R649-3-3. Exception**
- ☑ **Drilling Unit**

**Board Cause No:** Cause 173-14
**Effective Date:** 12/2/1999
**Siting:** 460' Fr U Bdry & Uncommitted Tracts

- ☑ **R649-3-11. Directional Drill**

**Comments:** Presite Completed

**Stipulations:**
3 - Commingling - ddoucet
5 - Statement of Basis - bhill
15 - Directional - dmason
17 - Oil Shale 190-5(b) - dmason
25 - Surface Casing - hmacdonald

**RECEIVED: October 27, 2011**

GARY R. HERBERT
*Governor*
GREGORY S. BELL
*Lieutenant Governor*

**State of Utah**
**DEPARTMENT OF NATURAL RESOURCES**
MICHAEL R. STYLER
*Executive Director*
**Division of Oil, Gas and Mining**
JOHN R. BAZA
*Division Director*

# Permit To Drill

**********

**Well Name:** NBU 1022-2O4BS
**API Well Number:** 43047518490000
**Lease Number:** ST UT ML 22651
**Surface Owner:** STATE
**Approval Date:** 10/27/2011

**Issued to:**
KERR-MCGEE OIL & GAS ONSHORE, L.P., P.O. Box 173779, Denver, CO 80217

**Authority:**
Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of Cause 173-14. The expected producing formation or pool is the WASATCH-MESA VERDE Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

**Duration:**
This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

**Commingle:**
In accordance with Board Cause No. 173-14, commingling of the production from the Wasatch formation and the Mesaverde formation in this well is allowed.

**General:**
Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

**Conditions of Approval:**
In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

In accordance with the Order in Cause No. 190-5(b) dated October 28, 1982, the operator shall comply with the requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operators shall ensure that the surface and or production casing is properly cemented over the entire oil shale section as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the division.

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

Surface casing shall be cemented to the surface.

**Additional Approvals:**
The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:

- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

**Notification Requirements:**
The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well – contact Carol Daniels
  OR
  submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at http://oilgas.ogm.utah.gov
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program – contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well – contact Dan Jarvis

**Contact Information:**
The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office
  801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office
  801-231-8956 - after office hours

**Reporting Requirements:**
All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

**Approved By:**

For John Rogers
Associate Director, Oil & Gas

SUBMIT AS EMAIL | Print Form

# BLM - Vernal Field Office - Notification Form

Operator KERR-McGEE OIL & GAS Rig Name/# BUCKET RIG
Submitted By GINA BECKER Phone Number 720.929.6086
Well Name/Number NBU 1022-2O4BS
Qtr/Qtr SWSE Section 2 Township 10S Range 22E
Lease Serial Number ST UT ML 22651
API Number 4304751849

Spud Notice – Spud is the initial spudding of the well, not drilling out below a casing string.

Date/Time 12/30/2011 11:00 HRS AM ☐ PM ☐

Casing – Please report time casing run starts, not cementing times.

- ☑ Surface Casing
- ☐ Intermediate Casing
- ☐ Production Casing
- ☐ Liner
- ☐ Other

RECEIVED
DEC 2 9 2011
DIV. OF OIL, GAS & MINING

Date/Time 01/24/2012 08:00 HRS AM ☐ PM ☐

BOPE

- ☐ Initial BOPE test at surface casing point
- ☐ BOPE test at intermediate casing point
- ☐ 30 day BOPE test
- ☐ Other

Date/Time _____ _____ AM ☐ PM ☐

Remarks ESTIMATED DATE AND TIME. PLEASE CONTACT KENNY GATHINGS AT 435.828.0986 OR LOVEL YOUNG AT 435.781.7051

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6515 Ext

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ✓ SPUD REPORT Date of Spud: 1/2/2012 | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT Report Date: | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'.
RAN 14" 36.7# SCHEDULE 10 CONDUCTOR PIPE. CMT W/ 28 SX READY MIX.
SPUD WELL LOCATION ON JAN. 2, 2012 AT 12:00 HRS.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
01/06/2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |
| **SIGNATURE** N/A | | **DATE** 1/6/2012 |

RECEIVED Jan. 06, 2012

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6515 Ext

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ✓ SPUD REPORT Date of Spud: 1/2/2012 | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT Report Date: | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'.
RAN 14" 36.7# SCHEDULE 10 CONDUCTOR PIPE. CMT W/ 28 SX READY MIX.
SPUD WELL LOCATION ON JAN. 2, 2012 AT 12:00 HRS.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
01/06/2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |
| **SIGNATURE** N/A | | **DATE** 1/6/2012 |

RECEIVED Jan. 06, 2012

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6526

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT<br>Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT<br>Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SPUD REPORT<br>Date of Spud: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ✓ DRILLING REPORT<br>Report Date:<br>1/26/2012 | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

MIRU AIR RIG ON JAN. 25, 2012. DRILLED SURFACE HOLE TO 2292'. RAN SURFACE CASING AND CEMENTED. WELL IS WAITING ON ROTARY RIG. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH WELL COMPLETION REPORT.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
January 27, 2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |
| **SIGNATURE** N/A | | **DATE** 1/27/2012 |

RECEIVED: Jan. 27, 2012

**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 6

# ENTITY ACTION FORM

Operator: KERR McGEE OIL & GAS ONSHORE LP
Operator Account Number: N 2995
Address: P.O. Box 173779
city DENVER
state CO zip 80217
Phone Number: (720) 929-6086

**Well 1**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| 4304751848 | NBU 1022-11A4BS | | SWSE | 2 | 10S | 22E | UINTAH |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| B | 99999 | 2900 | 1/2/2012 | | | 1/18/2012 | |

**Comments:** MIRU PETE MARTIN BUCKET RIG. WSMVD
SPUD WELL LOCATION ON 01/02/2012 AT 07:30 HRS. BHL = Sec 11 NENE

**Well 2**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| 4304751841 | NBU 1022-11B1BS | | SWSE | 2 | 10S | 22E | UINTAH |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| B | 99999 | 2900 | 12/30/2011 | | | 1/18/2012 | |

**Comments:** MIRU PETE MARTIN BUCKET RIG. WSMVD
SPUD WELL LOCATION ON 12/30/2011 AT 07:30 HRS. BHL = Sec 11 NWNE

**Well 3**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| 4304751849 | NBU 1022-2O4BS | | SWSE | 2 | 10S | 22E | UINTAH |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| B | 99999 | 2900 | 1/2/2012 | | | 1/18/2012 | |

**Comments:** MIRU PETE MARTIN BUCKET RIG. WSMVD
SPUD WELL LOCATION ON 01/02/2012 AT 12:00 HRS. BHL = SWSE

**ACTION CODES:**
- **A** - Establish new entity for new well (single well only)
- **B** - Add new well to existing entity (group or unit well)
- **C** - Re-assign well from one existing entity to another existing entity
- **D** - Re-assign well from one existing entity to a new entity
- **E** - Other (Explain in 'comments' section)

GINA BECKER
**Name (Please Print)**
**Signature**
REGULATORY ANALYST
**Title**
1/6/2012
**Date**

**RECEIVED**
**JAN 18 2012**
**DIV. OF OIL, GAS & MINING**

(5/2000)

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

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**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6526

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ✓ NOTICE OF INTENT Approximate date work will start: 1/9/2012 | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SPUD REPORT Date of Spud: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ☐ DRILLING REPORT Report Date: | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ✓ OTHER | OTHER: Pit Refurb/ ACTS |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

Kerr-McGee Oil & Gas Onshore, LP is requesting to refurb the existing pit on this multi-well pad for completion operations. The refurb pit will be relined per the requirements in the COA of the APD. Upon completion of the wells on this pad, Kerr-McGee is also requesting to utilize this pit as an ACTS staging pit to be utilized for other completion operations in the area. The trucks will unload water into these tanks before the water is placed into the refurbed pit. The purpose of the frac tanks is to collect any hydro-carbons that may have been associated with the other completion operations before releasing into the pit. We plan to keep this pit open for 1 year. During this time the surrounding well location completion fluids will be recycled in this pit and utilized for other frac jobs in the surrounding sections. Thank you.

**Approved by the Utah Division of Oil, Gas and Mining**

**Date:** January 31, 2012

**By:**

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Gina Becker | 720 929-6086 | Regulatory Analyst II |
| **SIGNATURE** N/A | | **DATE** 1/9/2012 |

RECEIVED: Jan. 09, 2012

**The Utah Division of Oil, Gas, and Mining**

**- State of Utah**
**- Department of Natural Resources**

**Electronic Permitting System - Sundry Notices**

## Sundry Conditions of Approval Well Number 43047518490000

**A synthetic liner with a minimum thickness of 30 mils with a felt subliner shall be properly installed and maintained in the pit.**

RECEIVED: Jan. 31, 2012

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

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**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6526

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ✓ NOTICE OF INTENT<br>Approximate date work will start: 1/17/2012 | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| | ✓ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SUBSEQUENT REPORT<br>Date of Work Completion: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ☐ SPUD REPORT<br>Date of Spud: | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT<br>Report Date: | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

The Operator requests approval for changes in the drilling plan. Specifically, the Operator requests approval for a FIT wavier, closed loop drilling options, and a production casing change. All other aspects of the previously approved drilling plan will not change. Please see the attachment. Thank you.

**Approved by the Utah Division of Oil, Gas and Mining**

**Date:** February 13, 2012

**By:** Dark K Quist

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |
| **SIGNATURE** N/A | | **DATE** 1/17/2012 |

RECEIVED: Jan. 17, 2012

# Kerr-McGee Oil & Gas Onshore. L.P.

**NBU 1022-2O4BS**

| | | |
|---|---|---|
| Surface: | 221 FSL / 1392 FEL | SWSE |
| BHL: | 415 FSL / 1807 FEL | SWSE |

Section 2 T10S R22E

Uintah County, Utah
Mineral Lease: ST UT ML 22651

**ONSHORE ORDER NO. 1**

**DRILLING PROGRAM**

**1. & 2.** **Estimated Tops of Important Geologic Markers:**
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

| Formation | Depth | Resource |
|---|---|---|
| Uinta | 0 - Surface | |
| Green River | 1,052' | |
| Birds Nest | 1,349' | Water |
| Mahogany | 1,722' | Water |
| Wasatch | 4,141' | Gas |
| Mesaverde | 6,333' | Gas |
| MVU2 | 7,333' | Gas |
| MVL1 | 7,930' | Gas |
| TVD | 8,555' | |
| TD | 8,599' | |

**3.** **Pressure Control Equipment** (Schematic Attached)

Please refer to the attached Drilling Program

**4.** **Proposed Casing & Cementing Program:**

Please refer to the attached Drilling Program

**5.** **Drilling Fluids Program:**

Please refer to the attached Drilling Program

**6.** **Evaluation Program:**

Please refer to the attached Drilling Program

RECEIVED: Feb. 10, 2012

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8555' TVD, approximately equals 5,475 psi (0.64 psi/ft = actual bottomhole gradient)

Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,581 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

Drilling is planned to commence immediately upon approval of this application.

**9. Variances:**

Please refer to the attached Drilling Program.
Onshore Order #2 – Air Drilling Variance

Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2

- Blowout Prevention Equipment (BOPE) requirements;
- Mud program requirements; and
- Special drilling operation (surface equipment placement) requirements associated with air drilling.

This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.

The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.

More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.

**Background**

In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.

RECEIVED: Feb. 10, 2012

Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.

**Variance for BOPE Requirements**
The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.

**Variance for Mud Material Requirements**
Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.

**Variance for Special Drilling Operation (surface equipment placement) Requirements**
Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.

Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.

Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and

on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.

**Variance for FIT Requirements**
KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**Conclusion**
The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

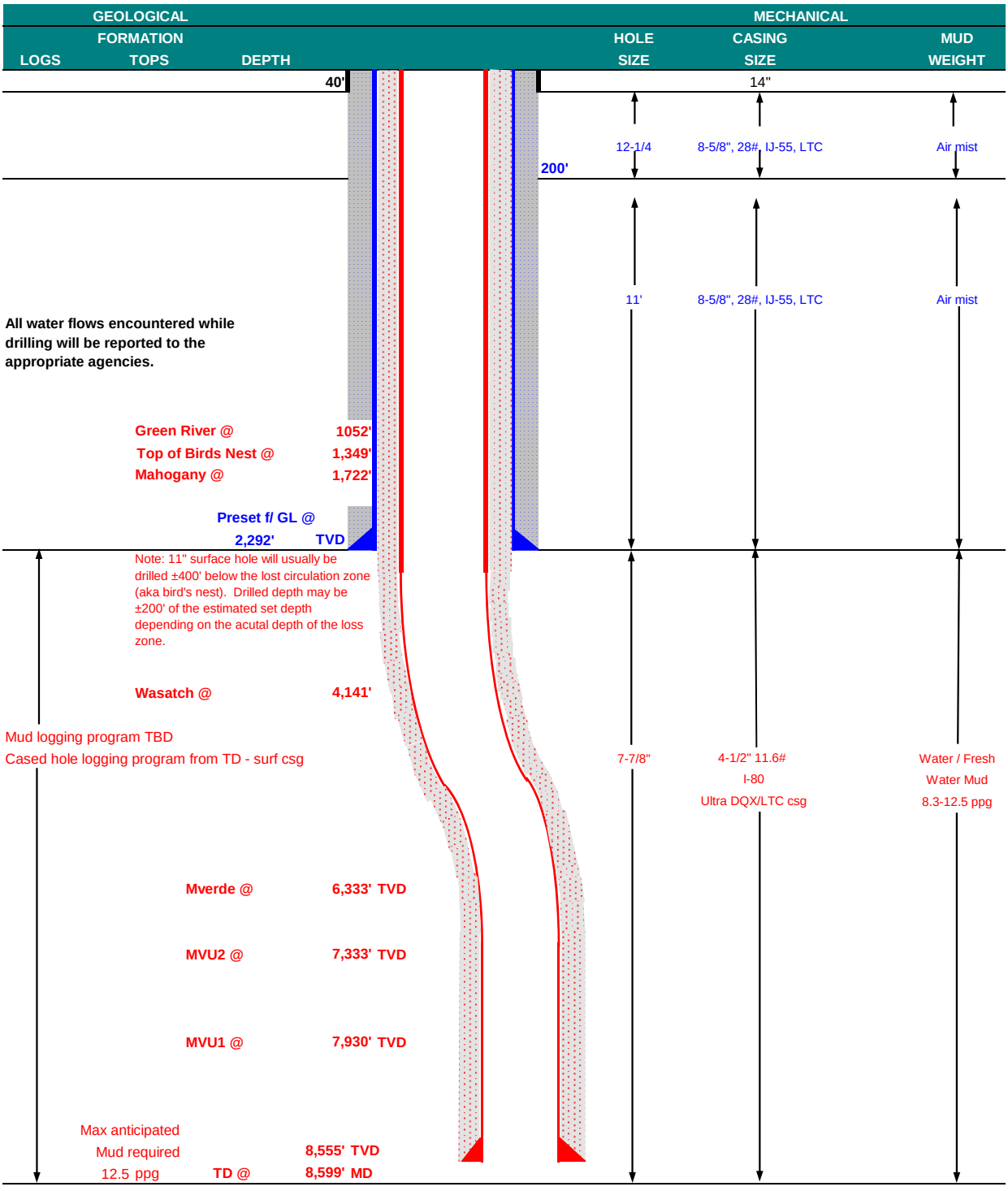
Please refer to the attached Drilling Program.

KerrMcGee

## KERR-McGEE OIL & GAS ONSHORE LP

# DRILLING PROGRAM

| | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | | DATE | February 10, 2012 | |
| WELL NAME | **NBU 1022-2O4BS** | | TD | 8,555' TVD | 8,599' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah | FINISHED ELEVATION | 5,092' |
| SURFACE LOCATION | SWSE | 221 FSL | 1392 FEL | Sec 2 | T 10S R 22E |
| | Latitude: 39.971337 | Longitude: -109.40196 | | NAD 27 | |
| BTM HOLE LOCATION | SWSE | 415 FSL | 1807 FEL | Sec 2 | T 10S R 22E |
| | Latitude: 39.971871 | Longitude: -109.403439 | | NAD 27 | |
| OBJECTIVE ZONE(S) | Wasatch/Mesaverde | | | | |
| ADDITIONAL INFO | Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept. | | | | |



# KERR-McGEE OIL & GAS ONSHORE LP

## DRILLING PROGRAM

### CASING PROGRAM

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | LTC | DQX TENSION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,292 | 28.00 | IJ-55 | LTC | 2.36 | 1.75 | 6.19 | N/A |
| | | | | | | | | 7,780 | 6,350 | 223,000 | 267,000 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | I-80 | DQX | 1.11 | 1.14 | | 3.31 |
| | 4-1/2" | 5,000 | to | 8,599' | 11.60 | I-80 | LTC | 1.11 | 1.14 | 6.60 | |

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

### CEMENT PROGRAM

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | YIELD |
|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | |
| SURFACE | | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | |
| **Option 2** | LEAD | 1,792' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 170 | 35% | 11.00 | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | 1.15 |
| | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | 1.15 |
| PRODUCTION | LEAD | 3,639' | Premium Lite II +0.25 pps | 290 | 35% | 12.00 | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | |
| | | | + 0.5% extender | | | | |
| | TAIL | 4,960' | 50/50 Poz/G + 10% salt + 2% gel | 1,170 | 35% | 14.30 | 1.31 |
| | | | + 0.1% R-3 | | | | |

*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

### FLOAT EQUIPMENT & CENTRALIZERS

| | |
|---|---|
| SURFACE | Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe |
| PRODUCTION | Float shoe, 1 jt, float collar. 15 centralizers for a Mesaverde and 20 for a Blackhawk well. 1 centralizer on the first 3 joints and one every third joint thereafter. |

### ADDITIONAL INFORMATION

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:** _____ **DATE:** _____

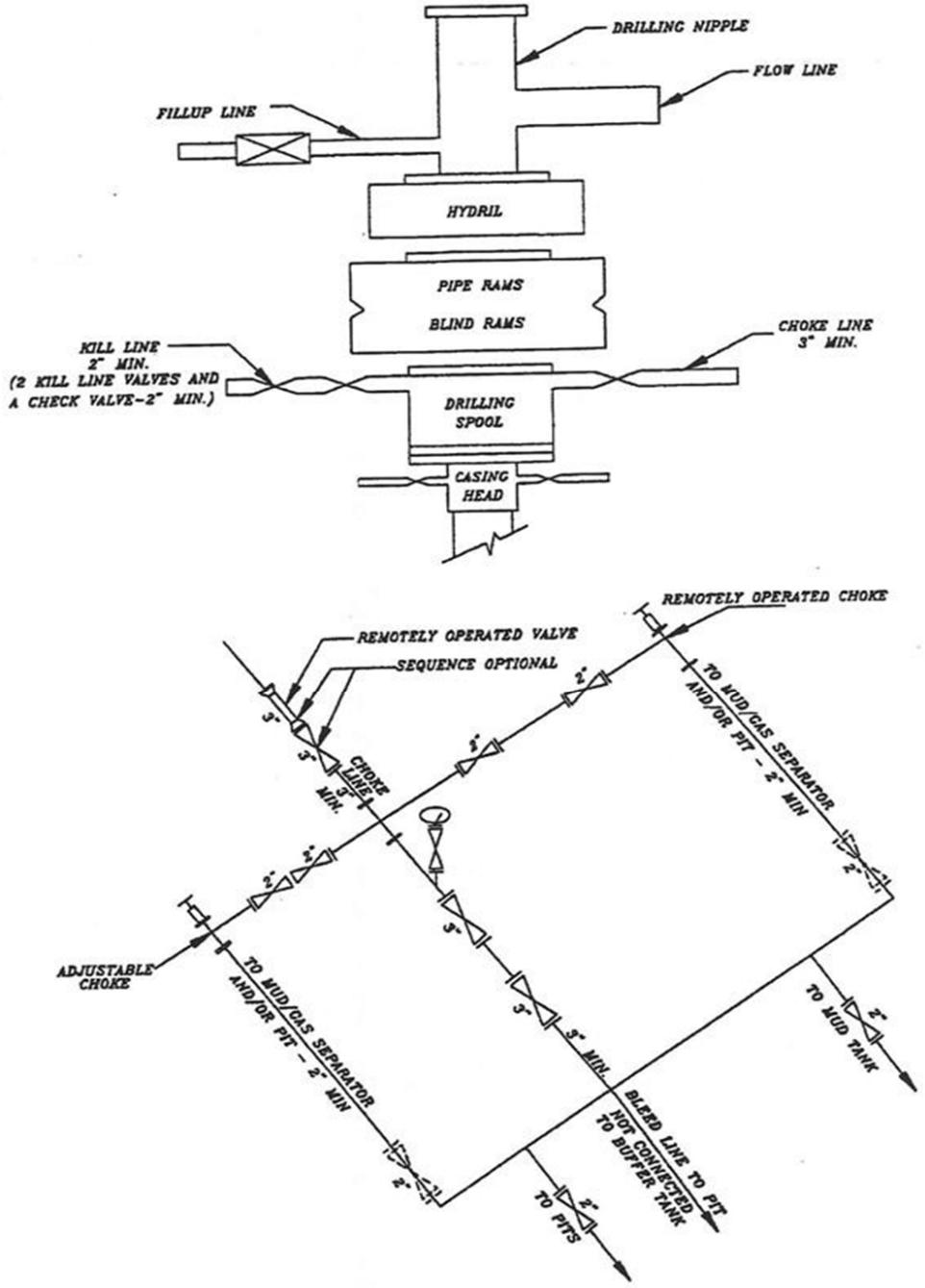
Nick Spence / Danny Showers / Chad Loesel

**DRILLING SUPERINTENDENT:** _____ **DATE:** _____

Kenny Gathings / Lovel Young

RECEIVED: Feb. 10, 2012

**EXHIBIT A**
**NBU 1022-2O4BS**




**SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK**

RECEIVED: Feb. 10, 2012

Requested Drilling Options:

Kerr-McGee will use either a closed loop drilling system that will require one pit and one cuttings storage area to be constructed on the drilling pad or a traditional drilling operation with one pit used for drilling and completion operations. The cuttings storage area will be used to contain only the de-watered drill cuttings and will be lined and bermed to prevent any liquid runoff. The drill cuttings will be buried in the completion pit once completion operations are completed according to traditional pit closure standards. The pit will be constructed to allow for completion operations. The completion operations pit will be lined with a synthetic material 20 mil or thicker and will be used for the completing of the wells on the pad or used as part of our Aandarko Completions Transportation System (ACTS). Using the closed loop drilling system will allow Kerr-McGee to decrease the amount of disturbance/footprint on location compared to a single large drilling/completions pit.

If Kerr-McGee does not use a closed loop drilling system, it will construct a traditional drilling/completions pit to contain drill cuttings and for use in completion operations. The pit will be lined with a synthetic material 20 mil or thicker. The drill cuttings will be buried in the pit using traditional pit closure standards.

RECEIVED: Feb. 10, 2012

# Kerr-McGee Oil & Gas Onshore. L.P.

**NBU 1022-2O4BS**

Surface: 221 FSL / 1392 FEL SWSE
BHL: 415 FSL / 1807 FEL SWSE

Section 2 T10S R22E

Unitah County, Utah
Mineral Lease: ST UT ML 22651

**ONSHORE ORDER NO. 1**

**DRILLING PROGRAM**

**1. & 2.** **Estimated Tops of Important Geologic Markers:**
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

| Formation | Depth | Resource |
|---|---|---|
| Uinta | 0 - Surface | |
| Green River | 1,043' | |
| Birds Nest | 1,328' | Water |
| Mahogany | 1,832' | Water |
| Wasatch | 4,141' | Gas |
| Mesaverde | 6,333' | Gas |
| Sego | 8,564' | Gas |
| Castlegate | 8,691' | Gas |
| Blackhawk | 9,136' | Gas |
| TVD | 9,736' | |
| TD | 9,783' | |

**3.** **Pressure Control Equipment** (Schematic Attached)

Please refer to the attached Drilling Program

**4.** **Proposed Casing & Cementing Program:**

Please refer to the attached Drilling Program

**5.** **Drilling Fluids Program:**

Please refer to the attached Drilling Program

RECEIVED: Jan. 17, 2012

**6. Evaluation Program:**

Please refer to the attached Drilling Program

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 9736' TVD, approximately equals 6,426 psi (0.66 psi/ft = actual bottomhole gradient)

Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 4,328 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

Drilling is planned to commence immediately upon approval of this application.

**9. Variances:**

Please refer to the attached Drilling Program.
Onshore Order #2 – Air Drilling Variance

Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2

- Blowout Prevention Equipment (BOPE) requirements;
- Mud program requirements; and
- Special drilling operation (surface equipment placement) requirements associated with air drilling.

This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.

The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.

More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.

RECEIVED: Jan. 17, 2012

**Background**

In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.

Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may

be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.

**Variance for BOPE Requirements**

The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.

**Variance for Mud Material Requirements**

Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.

RECEIVED: Jan. 17, 2012

**Variance for Special Drilling Operation (surface equipment placement) Requirements**
Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.

Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.

Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.

**Variance for FIT Requirements**
KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**Conclusion**
The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

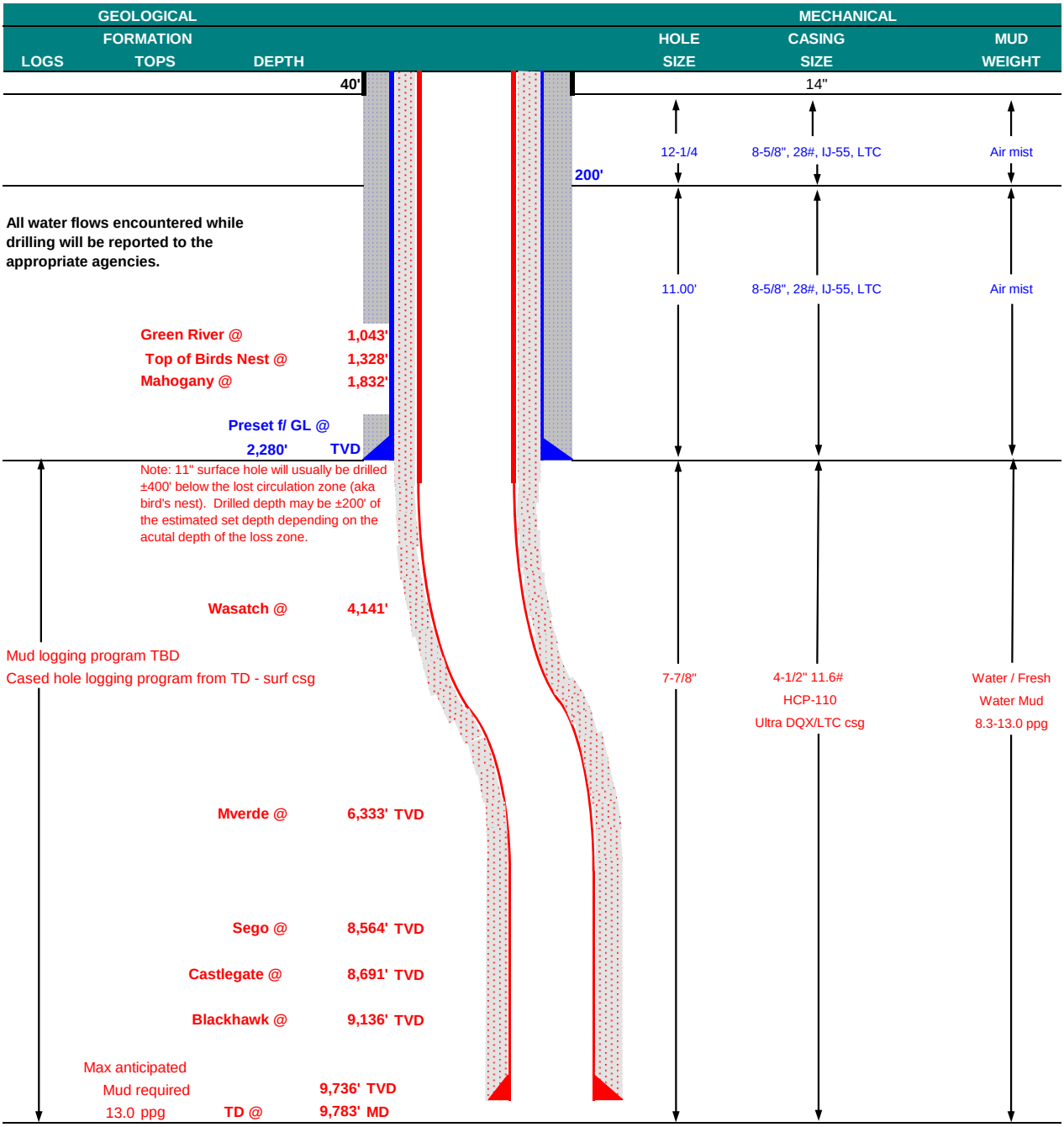
Please refer to the attached Drilling Program.

KerrMcGee

# KERR-McGEE OIL & GAS ONSHORE LP

## DRILLING PROGRAM

| | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | | | DATE | January 17, 2012 |
| WELL NAME | **NBU 1022-2O4BS** | | | TD | 9,736' TVD 9,783' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah | FINISHED ELEVATION | 5,098' |
| SURFACE LOCATION | SWSE 221 FSL 1392 FEL | Sec 2 | T 10S | R 22E | |
| | Latitude: 39.971337 | Longitude: -109.401960 | | NAD 27 | |
| BTM HOLE LOCATION | SWSE 415 FSL 1807 FEL | Sec 2 | T 10S | R 22E | |
| | Latitude: 39.971871 | Longitude: -109.403439 | | NAD 27 | |
| OBJECTIVE ZONE(S) | BLACKHAWK | | | | |
| ADDITIONAL INFO | Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept. | | | | |



# KERR-McGEE OIL & GAS ONSHORE LP

## DRILLING PROGRAM

### CASING PROGRAM

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | TENSION | LTC / DQX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,280 | 28.00 | IJ-55 | LTC | 2.36 | 1.76 | 6.22 | N/A |
| | | | | | | | | 10,690 | 8,650 | 279,000 | 367,174 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | HCP-110 | DQX | 1.19 | 1.31 | | 4.04 |
| | 4-1/2" | 5,000 | to | 9,783' | 11.60 | HCP-110 | LTC | 1.19 | 1.31 | 6.28 | |

**Surface Casing:**

(Burst Assumptions: TD = 13.0 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 9000 psi) 0.66 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

### CEMENT PROGRAM

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | YIELD |
|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | |
| SURFACE | | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | |
| **Option 2** | LEAD | 1,780' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 160 | 35% | 11.00 | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | 1.15 |
| | | | + 0.25 pps flocele | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | 1.15 |
| PRODUCTION | LEAD | 3,633' | Premium Lite II +0.25 pps | 270 | 20% | 11.00 | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | |
| | | | + 0.5% extender | | | | |
| | TAIL | 6,150' | 50/50 Poz/G + 10% salt + 2% gel | 1,450 | 35% | 14.30 | 1.31 |
| | | | + 0.1% R-3 | | | | |

*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

### FLOAT EQUIPMENT & CENTRALIZERS

| | |
|---|---|
| SURFACE | Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe |
| PRODUCTION | Float shoe, 1 jt, float collar. No centralizers will be used. |

### ADDITIONAL INFORMATION

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:** _____ **DATE:** _____

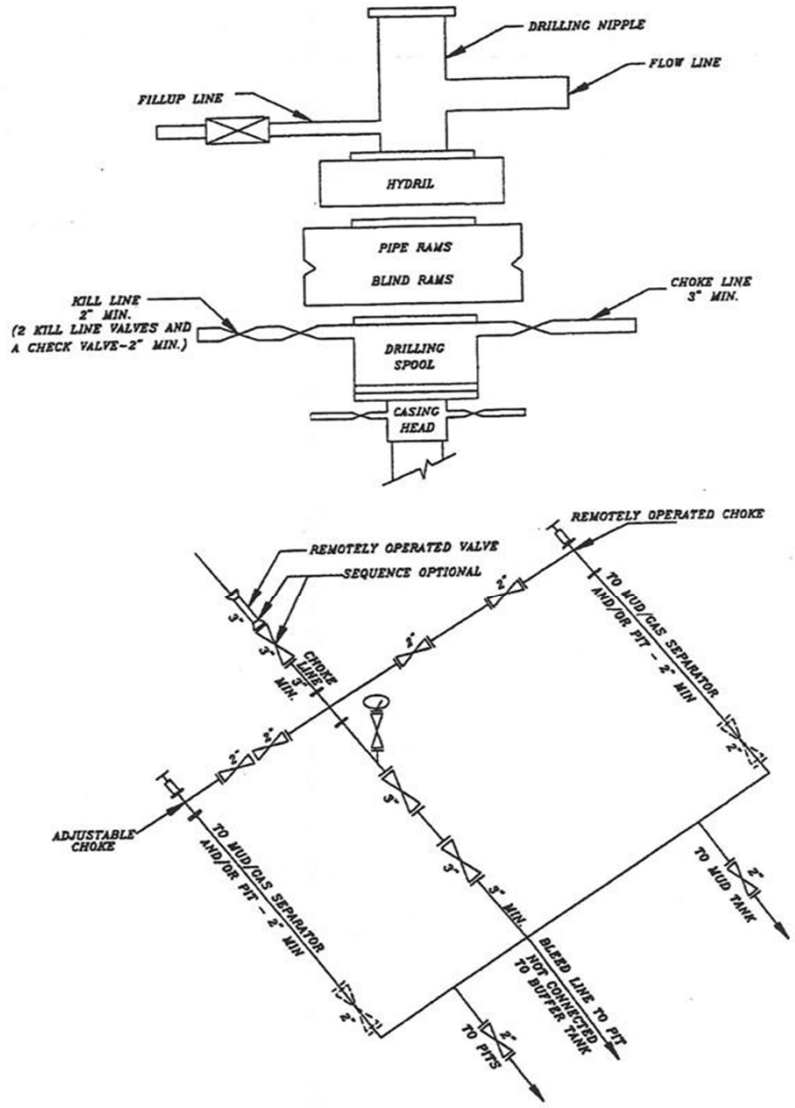
Nick Spence / Danny Showers / Chad Loesel

**DRILLING SUPERINTENDENT:** _____ **DATE:** _____

Kenny Gathings / Lovel Young

RECEIVED: Jan. 17, 2012

**EXHIBIT A**
**NBU 1022-2O4BS**




**SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK**

Requested Drilling Options:

Kerr-McGee will use either a closed loop drilling system that will require one pit and one cuttings storage area to be constructed on the drilling pad or a traditional drilling operation with one pit used for drilling and completion operations. The cuttings storage area will be used to contain only the de-watered drill cuttings and will be lined and bermed to prevent any liquid runoff. The drill cuttings will be buried in the completion pit once completion operations are completed according to traditional pit closure standards. The pit will be constructed to allow for completion operations. The completion operations pit will be lined with a synthetic material 20 mil or thicker and will be used for the completing of the wells on the pad or used as part of our Aandarko Completions Transportation System (ACTS). Using the closed loop drilling system will allow Kerr-McGee to decrease the amount of disturbance/footprint on location compared to a single large drilling/completions pit.

If Kerr-McGee does not use a closed loop drilling system, it will construct a traditional drilling/completions pit to contain drill cuttings and for use in completion operations. The pit will be lined with a synthetic material 20 mil or thicker. The drill cuttings will be buried in the pit using traditional pit closure standards.

RECEIVED: Jan. 17, 2012

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6515

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ✓ NOTICE OF INTENT Approximate date work will start: 2/15/2012 | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SPUD REPORT Date of Spud: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ☐ DRILLING REPORT Report Date: | ✓ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

The operator requests approval to deepen the well to the Blackhawk formation (part of the Mesaverde Group). All other aspects of the previously approved drilling plan will not change. Please see the attachment. Thank you.

**Approved by the Utah Division of Oil, Gas and Mining**

**Date:** February 16, 2012

**By:** Dark K Quist

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |
| **SIGNATURE** N/A | | **DATE** 2/15/2012 |

# Kerr-McGee Oil & Gas Onshore. L.P.

**NBU 1022-2O4BS**

Surface: 221 FSL / 1392 FEL SWSE
BHL: 415 FSL / 1807 FEL SWSE

Section 2 T10S R22E

Unitah County, Utah
Mineral Lease: ST UT ML 22651

**ONSHORE ORDER NO. 1**

**DRILLING PROGRAM**

**1. & 2.** **Estimated Tops of Important Geologic Markers:**
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

| Formation | Depth | Resource |
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| Mesaverde | 6,333' | Gas |
| Sego | 8,564' | Gas |
| Castlegate | 8,691' | Gas |
| Blackhawk | 9,136' | Gas |
| TVD | 9,736' | |
| TD | 9,783' | |

**3.** **Pressure Control Equipment** (Schematic Attached)

Please refer to the attached Drilling Program

**4.** **Proposed Casing & Cementing Program:**

Please refer to the attached Drilling Program

**5.** **Drilling Fluids Program:**

Please refer to the attached Drilling Program

RECEIVED: Feb. 15, 2012

**6. Evaluation Program:**

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Maximum anticipated bottom hole pressure calculated at 9736' TVD, approximately equals 6,426 psi (0.66 psi/ft = actual bottomhole gradient)

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Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

Drilling is planned to commence immediately upon approval of this application.

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Please refer to the attached Drilling Program.
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be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

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Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.

RECEIVED: Feb. 15, 2012

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Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.

**Variance for FIT Requirements**
KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**Conclusion**
The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

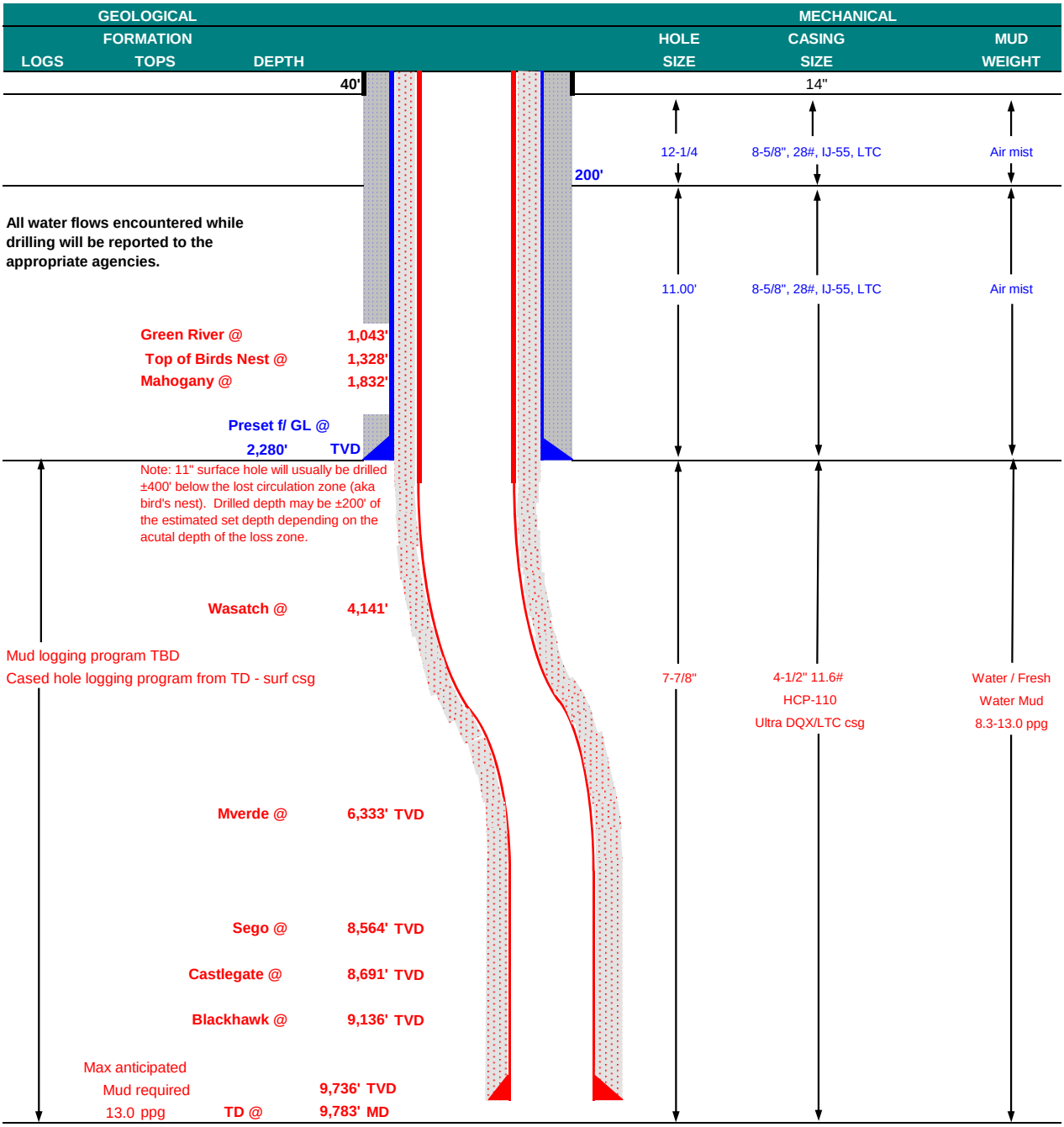
Please refer to the attached Drilling Program.

RECEIVED: Feb. 15, 2012

**KERR-McGEE OIL & GAS ONSHORE LP**

# DRILLING PROGRAM

| | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | | DATE | January 17, 2012 | |
| WELL NAME | **NBU 1022-2O4BS** | | TD | 9,736' TVD | 9,783' MD |
| FIELD | Natural Buttes | COUNTY Uintah STATE Utah | | FINISHED ELEVATION | 5,098' |
| SURFACE LOCATION | SWSE 221 FSL 1392 FEL | Sec 2 T 10S R 22E | | | |
| | Latitude: 39.971337 | Longitude: -109.401960 | | NAD 27 | |
| BTM HOLE LOCATION | SWSE 415 FSL 1807 FEL | Sec 2 T 10S R 22E | | | |
| | Latitude: 39.971871 | Longitude: -109.403439 | | NAD 27 | |
| OBJECTIVE ZONE(S) | BLACKHAWK | | | | |
| ADDITIONAL INFO | Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept. | | | | |



# KERR-McGEE OIL & GAS ONSHORE LP

## DRILLING PROGRAM

### CASING PROGRAM

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | TENSION | LTC / DQX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,280 | 28.00 | IJ-55 | LTC | 2.36 | 1.76 | 6.22 | N/A |
| | | | | | | | | 10,690 | 8,650 | 279,000 | 367,174 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | HCP-110 | DQX | 1.19 | 1.31 | | 4.04 |
| | 4-1/2" | 5,000 | to | 9,783' | 11.60 | HCP-110 | LTC | 1.19 | 1.31 | 6.28 | |

**Surface Casing:**

(Burst Assumptions: TD = 13.0 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 9000 psi) 0.66 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

### CEMENT PROGRAM

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | | YIELD |
|---|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | | |
| SURFACE | | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | | |
| **Option 2** | LEAD | 1,780' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 160 | 35% | 11.00 | | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | | 1.15 |
| | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | | 1.15 |
| PRODUCTION | LEAD | 3,633' | Premium Lite II +0.25 pps | 270 | 20% | 11.00 | | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | | |
| | | | + 0.5% extender | | | | | |
| | TAIL | 6,150' | 50/50 Poz/G + 10% salt + 2% gel | 1,450 | 35% | 14.30 | | 1.31 |
| | | | + 0.1% R-3 | | | | | |

*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

### FLOAT EQUIPMENT & CENTRALIZERS

| | |
|---|---|
| SURFACE | Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe |
| PRODUCTION | Float shoe, 1 jt, float collar. No centralizers will be used. |

### ADDITIONAL INFORMATION

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:** _____ **DATE:** _____

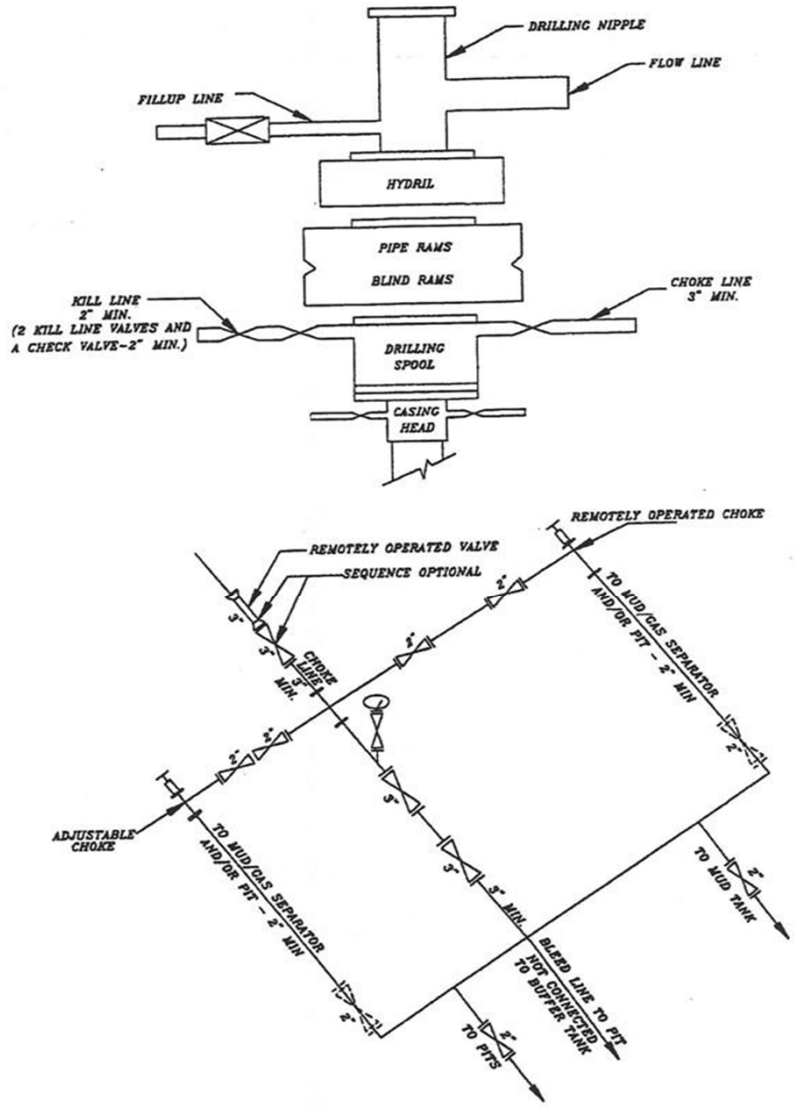
Nick Spence / Danny Showers / Chad Loesel

**DRILLING SUPERINTENDENT:** _____ **DATE:** _____

Kenny Gathings / Lovel Young

RECEIVED: Feb. 15, 2012

**EXHIBIT A**
**NBU 1022-2O4BS**




**SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK**

BLM - Vernal Field Office - Notification Form

Operator KERR MCGEE Rig Name/# H&P 311
Submitted By SCOTT ALLRED Phone Number 435- 790-1884
Well Name/Number NBU 1022-~~024BS~~ 204BS
Qtr/Qtr SW/SE Section 2 Township 10S Range 22E
Lease Serial Number ST UT ML 22651
API Number 43-047-518490000

Spud Notice – Spud is the initial spudding of the well, not drilling out below a casing string.

Date/Time _____ _____ AM ☐ PM ☐

Casing – Please report time casing run starts, not cementing times.

☐ Surface Casing
☐ Intermediate Casing
☐ Production Casing
☐ Liner
☐ Other

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Date/Time _____ _____ AM ☐ PM ☐

BOPE

☒ Initial BOPE test at surface casing point
☐ BOPE test at intermediate casing point
☐ 30 day BOPE test
☐ Other

Date/Time 3/2/2012 11:00 AM ☐ PM ☒

Remarks TIME ESTIMATED

_____

**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779 **PHONE NUMBER:** 720 929-6526

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SPUD REPORT Date of Spud: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ✓ DRILLING REPORT Report Date: 5/2/2012 | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| | ✓ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

THE SUBJECT WELL WAS PLACED ON PRODUCTION ON MAY 2, 2012 AT 1745 HOURS. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
May 08, 2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Gina Becker | 720 929-6086 | Regulatory Analyst II |
| **SIGNATURE** N/A | | **DATE** 5/3/2012 |

RECEIVED: May. 03, 2012

# STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

**5.LEASE DESIGNATION AND SERIAL NUMBER:** ST UT ML 22651

**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:**

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 1022-2O4BS

**2. NAME OF OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

**9. API NUMBER:** 43047518490000

**3. ADDRESS OF OPERATOR:** P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

**PHONE NUMBER:** 720 929-6526

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0221 FSL 1392 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWSE Section: 02 Township: 10.0S Range: 22.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

**11.** CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT<br>Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ SUBSEQUENT REPORT<br>Date of Work Completion: | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SPUD REPORT<br>Date of Spud: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ✓ DRILLING REPORT<br>Report Date:<br>3/10/2012 | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| | ☐ WATER SHUTOFF | ☐ SI TA STATUS EXTENSION | ☐ APD EXTENSION |
| | ☐ WILDCAT WELL DETERMINATION | ☐ OTHER | OTHER: |

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

MIRU ROTARY RIG. FINISHED DRILLING FROM 2313' TO 9831' ON 3/8/2012. RAN 4-1/2" 11.6# I-80 PRODUCTION CASING. CEMENTED PRODUCTION CASING. RELEASED H&P 311 RIG ON 3/10/2012 @ 20:30 HRS. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
June 20, 2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Cara Mahler | 720 929-6029 | Regulatory Analyst I |
| **SIGNATURE** N/A | | **DATE** 6/18/2012 |

RECEIVED: Jun. 18, 2012

**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☐ (highlight changes) FORM 8

# WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NUMBER: ST UT ML 22651
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT or CA AGREEMENT NAME: UTU63047A
8. WELL NAME and NUMBER: NBU 1022-2O4BS
9. API NUMBER: 4304751849
10. FIELD AND POOL, OR WILDCAT: NATURAL BUTTES
11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SWSE 2 10S 22E S
12. COUNTY: UINTAH
13. STATE: UTAH

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ DRY ☐ OTHER
b. TYPE OF WORK: NEW WELL ☑ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER
2. NAME OF OPERATOR: KERR MCGEE OIL & GAS ONSHORE, L.P.
3. ADDRESS OF OPERATOR: P.O.BOX 173779 CITY DENVER STATE CO ZIP 80217
PHONE NUMBER: (720) 929-6000
4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: SWSE 221 FSL 1392 FEL S2,T10S,R22E
AT TOP PRODUCING INTERVAL REPORTED BELOW: SWSE 428 FSL 1818 FEL S2,T10S,R22E
AT TOTAL DEPTH: SWSE 390 FSL 1778 FEL S2,T10S,R22E BHL by HSM

14. DATE SPUDDED: 1/2/2012
15. DATE T.D. REACHED: 3/7/2012
16. DATE COMPLETED: 5/2/2012 ABANDONED ☐ READY TO PRODUCE ☑
17. ELEVATIONS (DF, RKB, RT, GL): 5092 GL
18. TOTAL DEPTH: MD 9,831 TVD 9,779
19. PLUG BACK T.D.: MD 9,773 TVD 9,721
20. IF MULTIPLE COMPLETIONS, HOW MANY? *
21. DEPTH BRIDGE PLUG SET: MD TVD
22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
CBL/CMI/GR/CCL-BHV-SD/DSN/ACTR
23.
WAS WELL CORED? NO ☑ YES ☐ (Submit analysis)
WAS DST RUN? NO ☑ YES ☐ (Submit report)
DIRECTIONAL SURVEY? NO ☐ YES ☑ (Submit copy)

**24. CASING AND LINER RECORD (Report all strings set in well)**

| HOLE SIZE | SIZE/GRADE | WEIGHT (#/ft.) | TOP (MD) | BOTTOM (MD) | STAGE CEMENTER DEPTH | CEMENT TYPE & NO. OF SACKS | SLURRY VOLUME (BBL) | CEMENT TOP ** | AMOUNT PULLED |
|---|---|---|---|---|---|---|---|---|---|
| 20" | 14" STL | 36.7# | 0 | 40 | | 28 | | | |
| 11" | 8 5/8" J-55 | 28# | 0 | 2,280 | | 450 | | 0 | |
| 7 7/8" | 4 1/2" I-80 | 11.6# | 0 | 9,816 | | 2,230 | | 100 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

**25. TUBING RECORD**

| SIZE | DEPTH SET (MD) | PACKER SET (MD) | SIZE | DEPTH SET (MD) | PACKER SET (MD) | SIZE | DEPTH SET (MD) | PACKER SET (MD) |
|---|---|---|---|---|---|---|---|---|
| 2 3/8" | 8,171 | | | | | | | |

**26. PRODUCING INTERVALS**

| FORMATION NAME | TOP (MD) | BOTTOM (MD) | TOP (TVD) | BOTTOM (TVD) |
|---|---|---|---|---|
| (A) MESAVERDE | 6,470 | 9,385 | | |
| (B) | | | | |
| (C) | | | | |
| (D) | | | | |

**27. PERFORATION RECORD**

| INTERVAL (Top/Bot - MD) | SIZE | NO. HOLES | PERFORATION STATUS |
|---|---|---|---|
| 6,470 9,385 | 0.36 | 240 | Open ☑ Squeezed ☐ |
| | | | Open ☐ Squeezed ☐ |
| | | | Open ☐ Squeezed ☐ |
| | | | Open ☐ Squeezed ☐ |

**28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.**

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| DEPTH INTERVAL | AMOUNT AND TYPE OF MATERIAL |
|---|---|
| 6470-9385 | PUMP 10,587 BBLS SLICK H2O & 210,957 LBS 30/50 OTTAWA SAND |
| | 10 STAGES |
| | |

**29. ENCLOSED ATTACHMENTS:**

☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☑ DIRECTIONAL SURVEY
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

**30. WELL STATUS:** PROD

(5/2000)

**(CONTINUED ON BACK)**

**31. INITIAL PRODUCTION** — **INTERVAL A (As shown in Item #26)**

| DATE FIRST PRODUCED: | TEST DATE: | HOURS TESTED: | TEST PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | PROD. METHOD: |
|---|---|---|---|---|---|---|---|
| 5/2/2012 | 5/3/2012 | 24 | | 0 | 1,318 | 0 | |

| CHOKE SIZE: | TBG. PRESS. | CSG. PRESS. | API GRAVITY | BTU – GAS | GAS/OIL RATIO | 24 HR PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | INTERVAL STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|
| 20/64 | 1,213 | 1,760 | | | | | 0 | 1,318 | 0 | PROD |

**INTERVAL B (As shown in Item #26)**

| DATE FIRST PRODUCED: | TEST DATE: | HOURS TESTED: | TEST PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | PROD. METHOD: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| CHOKE SIZE: | TBG. PRESS. | CSG. PRESS. | API GRAVITY | BTU – GAS | GAS/OIL RATIO | 24 HR PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | INTERVAL STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

**INTERVAL C (As shown in Item #26)**

| DATE FIRST PRODUCED: | TEST DATE: | HOURS TESTED: | TEST PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | PROD. METHOD: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| CHOKE SIZE: | TBG. PRESS. | CSG. PRESS. | API GRAVITY | BTU – GAS | GAS/OIL RATIO | 24 HR PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | INTERVAL STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

**INTERVAL D (As shown in Item #26)**

| DATE FIRST PRODUCED: | TEST DATE: | HOURS TESTED: | TEST PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | PROD. METHOD: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| CHOKE SIZE: | TBG. PRESS. | CSG. PRESS. | API GRAVITY | BTU – GAS | GAS/OIL RATIO | 24 HR PRODUCTION RATES: → | OIL – BBL: | GAS – MCF: | WATER – BBL: | INTERVAL STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

**32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)**

**33. SUMMARY OF POROUS ZONES (Include Aquifers):**

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

**34. FORMATION (Log) MARKERS:**

| Formation | Top (MD) | Bottom (MD) | Descriptions, Contents, etc. | Name | Top (Measured Depth) |
|---|---|---|---|---|---|
| | | | | GREEN RIVER | 1,051 |
| | | | | BIRD'S NEST | 1,342 |
| | | | | MAHOGANY | 1,712 |
| | | | | WASATCH | 4,209 |
| | | | | MESAVERDE | 6,413 |

**35. ADDITIONAL REMARKS (Include plugging procedure)**

The first 210' of the surface hole was drilled with a 12 ¼" bit. The remainder of surface hole was drilled with an 11" bit. DQX csg was run from surface to 4822'; LTC csg was run from 4822' to 9816'. Attached is the chronological well history, perforation report & final survey.

**36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.**

NAME (PLEASE PRINT) CARA MAHLER TITLE REGULATORY ANALYST

SIGNATURE DATE 6/15/2012

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

** ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

(5/2000)

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 1/25/2012 | 10:30 - 12:00 | 1.50 | MIRU | 01 | A | P | | MOVE RIG F/ NBU 1022-11B1BS TO NBU 1022-204BS |
| | 12:00 - 12:30 | 0.50 | MIRU | 01 | B | P | | NBU 1022-204BS (WELL 6 OF 7). INSTALL DIVERTOR HEAD AND BLUEY LINE. BUILD DITCH. SPOT IN RIG. SPOT IN CATWALK AND PIPE RACKS. RIG UP PIT PUMP. RIG UP PUMP. PRIME PUMP. INSPECT RIG. HELD PRE-SPUD SAFETY MEETING. |
| | 12:30 - 13:30 | 1.00 | DRLSUR | 01 | B | P | | P/U MOTOR & 12 1/4 BIT SPUD 01/25/2012 @ 13:30 |
| | 13:30 - 14:30 | 1.00 | DRLSUR | 02 | B | P | | DRILL 12.25" HOLE 44'- 210'. (166', 110'/HR) RPM=45, WOB 5-15K. PSI ON/OFF 600/400. UP/DOWN/ ROT 20/20/20 K. DRAG 0 K. CIRC RESERVE W. 8.3# WATER. DRILL DOWN TO 127' W/ 6" COLLARS. |
| | 14:30 - 16:00 | 1.50 | DRLSUR | 06 | A | P | | TOOH #1 BHA / TIH W/2# BHA |
| | 16:00 - 0:00 | 8.00 | DRLSUR | 02 | B | P | | DRILL F/210 T/1450' (1240' @ 109.8' PER HR) WOB 20K, PSI ON/OFF 1400/1100, RPM 40 UP/DWN/ROT 67/54/59 (LOST CIRC 1480') |
| 1/26/2012 | 0:00 - 8:00 | 8.00 | DRLSUR | 02 | B | P | | DRILL F/1450 T/2292' (842' @ 105.25' PER HR) WOB 18K, PSI ON/OFF 1600/1400, RPM 40 UP/DWN/ROT 90/78/82 (LOST CIRC 1410, GOT BACK @1510') |
| | 8:00 - 10:00 | 2.00 | DRLSUR | 05 | C | P | | CIRC PRIOR TO TOOH |
| | 10:00 - 13:00 | 3.00 | DRLSUR | 06 | A | P | | TOOH LDDP & BHA #2 |
| | 13:00 - 14:00 | 1.00 | DRLSUR | 12 | A | P | | MOVE PIPE RACKS AND CATWALK. PULL DIVERTER HEAD. RIG UP TO RUN CSG. AND MOVE CSG INTO POSITION TO P/U |
| | 14:00 - 17:30 | 3.50 | DRLSUR | 12 | C | P | | RUN 51 JTS 8 5/8, 28# CSNG., SHOE SET @ 2255', BAFFLE SET @ 2211.19', WASH DOWN LAST 3 JTS |
| | 17:30 - 18:30 | 1.00 | DRLSUR | 12 | B | P | | HOLD SAFETY MEETING, RUN 200' OF 1". RIG DOWN RIG MOVE OFF WELL, REBUILD DITCH. RIG UP CEMENT TRUCK, 2" HARD LINES,. CEMENT HEAD, LOAD PLUG. |
| | 18:30 - 20:30 | 2.00 | DRLSUR | 12 | E | P | | PRESSURE TEST LINES TO 2000 PSI. PUMP 140 BBLS OF WATER AHEAD. PUMP 20 BBLS OF 8.3# GEL WATER AHEAD. PUMP 300 SX TAIL ,15.8#, 1.15 YIELD. DROP PLUG ON FLY. DISPLACE WITH 134 BBLS OF H20. NO CIRC THROUGHOUT. FINAL LIFT 450 PSI AT 4 BBLS MIN. BUMP PLUG FLOAT DIDN'T HOLD, SHUT IN LEFT 600PSI FOR 4 HRS, PUMP 150 SX (30.7 BBLS) OF SAME TAIL CEMENT WITH 2% CACL DOWN 1". 3BBLS TO SURFACE, SHUT DOWN AND CLEAN TRUCK. RELEASE RIG @ 20:30 |
| 3/3/2012 | 0:00 - 1:00 | 1.00 | DRLPRO | 01 | C | P | | SKID RIG FROM NBU 1022-11B1BS |
| | 1:00 - 4:30 | 3.50 | DRLPRO | 14 | A | P | | NIPPLE UP BOP & FLOW LINES & STRATA LINES |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 4:30 - 8:30 | 4.00 | DRLPRO | 15 | A | P | | HOLD SAFTEY MEETING, RIG UP BOP TESTERS PRESS TEST THE BOP, TIW, DART VALVE, BOP VALVES, PIPE RAMS, BLIND RAMS, CHOKE VALVES, KILL LINE AND STRATA LINES TO 250 PSI LOW/5MIN AND 5000 PSI HIGH/10 MIN. TESTED THE ANNULAR T/250 PSI LOW & 2500 PSI HIGH,TEST 8 5/8" CASING T/1500 PSI ( OK ) RD TESTER. (1.5 HRS TESTING STRATA CHOKE, ORBIT VALVE DID NOT TEST) |
| | 8:30 - 9:00 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 9:00 - 12:00 | 3.00 | DRLPRO | 22 | L | Z | | CHANGE OUT STRATA ORBIT VALVE AND RETEST, |
| | 12:00 - 14:00 | 2.00 | DRLPRO | 06 | A | P | | MAKE UP BIT, MWD TOOLS AND BHA, TRIP IN TO 2170 |
| | 14:00 - 15:30 | 1.50 | DRLPRO | 02 | B | P | | DRILL CEMENT @ 2170'/ FLOAT 2231'/ SHOE 2277', |
| | 15:30 - 0:00 | 8.50 | DRLPRO | | | | | DRILL F/ 2313 ' T/ 3150' 837 TOTAL FEET @ 98.5 FEET PER HOUR<br>WEIGHT ON BIT 17/25,<br>ROTARY RPM'S 30/50<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.4 VIS 26<br>TORQUE ON BOTTOM 6,000<br>TORQUE OFF BOTTOM 4,000<br>PRESSURE ON BOTTOM 1700 PSI<br>PRESSURE OFF BOTTOM 1290 PSI<br>PICK UP WEIGHT 125<br>SLACK OFF WEIGHT 90<br>ROTATE WEIGHT 100<br>SLIDE 150 FEET/ 1.50 HOURS/ 90 FPH<br>ROTATE687 FEET/ 7 HOURS/ 98.1 FEET PER HOUR<br>25' HIGH OF TARGET CENTER<br>STRATA ON LINE<br>ANNULAR DRILLING PRESSURE 195 PSI<br>ANNULAR CONNECTION PRESSURE 45 PSI<br>0 FEET TO 0 FEET FLARE<br>NOV DEWATERING |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 3/4/2012 | 0:00 - 15:30 | 15.50 | PROD | 02 | B | P | | DRILL F/ 3150 ' T/ 4995' 1845 TOTAL FEET @ 119 FEET PER HOUR<br>WEIGHT ON BIT 17/25,<br>ROTARY RPM'S 30/50<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.4 VIS 26<br>TORQUE ON BOTTOM 7739<br>TORQUE OFF BOTTOM 5564<br>PRESSURE ON BOTTOM 1800 PSI<br>PRESSURE OFF BOTTOM 1450 PSI<br>PICK UP WEIGHT 149K<br>SLACK OFF WEIGHT 105K<br>ROTATE WEIGHT 125K<br>SLIDE 42' / 1 HR/ FPH 45'<br>ROTATE 1803' / 14.5 HRS./ FPH 124.3'<br>10' NORTH. 16' WEST OF TARGET CENTER<br>STRATA ON LINE FULL OPEN CHOKE<br>ANNULAR DRILLING PRESSURE 115 PSI<br>ANNULAR CONNECTION PRESSURE 65 PSI<br>0 FEET TO 0 FEET FLARE<br>NOV DEWATERING |
| | 15:30 - 16:00 | 0.50 | PROD | 07 | A | P | | RIG SERVICE |
| | 16:00 - 0:00 | 8.00 | PROD | 02 | B | P | | DRILL F/ 4995 ' T/ 5845' 850 TOTAL FEET @ 106.2 FEET PER HOUR<br>WEIGHT ON BIT 17/25,<br>ROTARY RPM'S 55<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.4 VIS 26<br>TORQUE ON BOTTOM 10,000<br>TORQUE OFF BOTTOM 8,000<br>PRESSURE ON BOTTOM 1985 PSI<br>PRESSURE OFF BOTTOM 1550 PSI<br>PICK UP WEIGHT 179K<br>SLACK OFF WEIGHT 110K<br>ROTATE WEIGHT 138K<br>SLIDE 0' / 0 HR/ FPH 0'<br>ROTATE 850' / 8 HRS./ FPH 106.2'<br>15' NORTH. 5' WEST OF TARGET CENTER<br>STRATA ON LINE FULL OPEN CHOKE<br>ANNULAR DRILLING PRESSURE 115 PSI<br>ANNULAR CONNECTION PRESSURE 65 PSI<br>0 FEET TO 0 FEET FLARE<br>NOV DEWATERING |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 3/5/2012 | 0:00 - 16:00 | 16.00 | DRLPRO | 02 | B | P | | DRILL F/ 5845 ' TO 7166' 1321 TOTAL FEET @ 82.56 FEET PER HOUR<br>WEIGHT ON BIT 17/25,<br>ROTARY RPM'S 55<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.5 VIS 27<br>TORQUE ON BOTTOM 11,000<br>TORQUE OFF BOTTOM 9,000<br>PRESSURE ON BOTTOM 2005 PSI<br>PRESSURE OFF BOTTOM 1550 PSI<br>PICK UP WEIGHT 201K<br>SLACK OFF WEIGHT 130K<br>ROTATE WEIGHT 162K<br>SLIDE 12' /.5 HR/ FPH 24'<br>ROTATE 1309' / 15.5 HRS./ FPH 84.4'<br>14' NORTH. 8' WEST OF TARGET CENTER<br>STRATA ON LINE FULL OPEN CHOKE<br>ANNULAR DRILLING PRESSURE 100 PSI<br>ANNULAR CONNECTION PRESSURE 0 PSI<br>0 FEET TO 0 FEET FLARE<br>NOV DEWATERING |
| | 16:00 - 16:30 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 16:30 - 0:00 | 7.50 | DRLPRO | 02 | B | P | | DRILL F/ 7166 ' TO 7830' 664 TOTAL FEET @ 94.8 FEET PER HOUR<br>WEIGHT ON BIT 25,<br>ROTARY RPM'S 55<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.5 VIS 28<br>TORQUE ON BOTTOM 14,000<br>TORQUE OFF BOTTOM 12,000<br>PRESSURE ON BOTTOM 2100 PSI<br>PRESSURE OFF BOTTOM 1885 PSI<br>PICK UP WEIGHT 229K<br>SLACK OFF WEIGHT 135K<br>ROTATE WEIGHT 169K<br>SLIDE 23' / .75 HR/ FPH 30.6'<br>ROTATE 641' / 6.25 HRS./ FPH 102.5'<br>12' NORTH. 4' WEST OF TARGET CENTER<br>STRATA ON LINE FULL OPEN CHOKE<br>ANNULAR DRILLING PRESSURE 145 PSI<br>ANNULAR CONNECTION PRESSURE 0 PSI<br>5 FEET TO 15 FEET FLARE<br>NOV DEWATERING |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 3/6/2012 | 0:00 - 16:30 | 16.50 | DRLPRO | 02 | B | P | | DRILL F/ 7830 ' TO 8960' 1130 TOTAL FEET @ 68.4 FEET PER HOUR<br>WEIGHT ON BIT 25,<br>ROTARY RPM'S 50<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.5 VIS 28<br>TORQUE ON BOTTOM 14,000<br>TORQUE OFF BOTTOM 12,000<br>PRESSURE ON BOTTOM 2100 PSI<br>PRESSURE OFF BOTTOM 1885 PSI<br>PICK UP WEIGHT 236K<br>SLACK OFF WEIGHT 141K<br>ROTATE WEIGHT 1183K<br>SLIDE 28' / 1.5 HR/ FPH 18.6'<br>ROTATE 1102' / 15 HRS./ FPH 71'<br>2' NORTH. 8' EAST OF TARGET CENTER<br>STRATA ON LINE<br>ANNULAR DRILLING PRESSURE 350 PSI<br>ANNULAR CONNECTION PRESSURE 250 PSI<br>10 FEET TO 25 FEET FLARE<br>NOV DEWATERING |
| | 16:30 - 17:00 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 17:00 - 0:00 | 7.00 | DRLPRO | | | | | DRILL F/ 8960 ' TO 9340' 380 TOTAL FEET @ 54.5 FEET PER HOUR<br>WEIGHT ON BIT 25,<br>ROTARY RPM'S 50<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.9 VIS 30<br>TORQUE ON BOTTOM 14,000<br>TORQUE OFF BOTTOM 12,000<br>PRESSURE ON BOTTOM 2560 PSI<br>PRESSURE OFF BOTTOM 2213 PSI<br>PICK UP WEIGHT 250K<br>SLACK OFF WEIGHT 150K<br>ROTATE WEIGHT 189K<br>SLIDE 0' / 0 HR/ FPH 0'<br>ROTATE 380' / 7 HRS./ FPH 54.5'<br>5' SOUTH. 14' EAST OF TARGET CENTER<br>STRATA ON LINE<br>ANNULAR DRILLING PRESSURE 350 PSI<br>ANNULAR CONNECTION PRESSURE 300 PSI<br>10 FEET TO 30 FEET FLARE<br>NOV BYPASS |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 3/7/2012 | 0:00 - 10:00 | 10.00 | DRLPRO | 02 | B | P | | DRILL F/ 9340 ' TO 9831' TD 491 TOTAL FEET @ 49.1 FEET PER HOUR<br>WEIGHT ON BIT 25,<br>ROTARY RPM'S 50<br>MUD MOTOR RPM'S 123<br>STROKES PER MINUTE 120 - GPM 536<br>MUD WEIGHT 8.9 VIS 30<br>TORQUE ON BOTTOM 16,000<br>TORQUE OFF BOTTOM 14,000<br>PRESSURE ON BOTTOM 2705 PSI<br>PRESSURE OFF BOTTOM 2510 PSI<br>PICK UP WEIGHT 265K<br>SLACK OFF WEIGHT 155K<br>ROTATE WEIGHT 195K<br>SLIDE 0' / 0 HR/ FPH 0'<br>ROTATE 491' / 10 HRS./ FPH49.1'<br>26' SOUTH.28' EAST OF TARGET CENTER<br>STRATA ON LINE<br>ANNULAR DRILLING PRESSURE 350 PSI<br>ANNULAR CONNECTION PRESSURE 450 PSI<br>10 FEET TO 30 FEET FLARE<br>NOV BYPASS |
| | 10:00 - 14:30 | 4.50 | DRLPRO | 05 | G | | | CIRC. AND DISPLACE 9.2 MUD WITH 11.7 MUD, LOST 150BBLS, BUILD VOLUME AND WEIGHT, CONDITION HOLE FOR WIPER TRIP, |
| | 14:30 - 17:00 | 2.50 | DRLPRO | 06 | E | P | | PULLED 15 STANDS, BACK REAMED 9 OF 15 STANDS, |
| | 17:00 - 19:00 | 2.00 | DRLPRO | 06 | E | X | | TRIP IN WASH AND REAM 8500' TO 9831' |
| | 19:00 - 22:00 | 3.00 | DRLPRO | 05 | A | X | | CIRC. AND COND. HOLE FOR WIPER TRIP |
| | 22:00 - 22:30 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 22:30 - 0:00 | 1.50 | DRLPRO | 06 | E | P | | WIPER TRIP TO THE SHOE ( TIGHT @ 8135' 4429') |
| 3/8/2012 | 0:00 - 8:00 | 8.00 | DRLPRO | 06 | E | P | | TRIP OUT FOR WIPER TRIP (TIGHT @ 8135, 4429) CHECK FOR FLOW AT SHOE TRIP IN TIGHT 4588 TO 4620 |
| | 8:00 - 10:00 | 2.00 | DRLPRO | 05 | F | P | | CIRC. AND COND. MUD AND HOLE |
| | 10:00 - 16:00 | 6.00 | DRLPRO | 06 | B | P | | TRIP OUT FOR LOGS |
| | 16:00 - 16:30 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 16:30 - 20:00 | 3.50 | DRLPRO | 11 | D | P | | RIG UP HALLIBURTON AND RUN IN W/ LOGS, TAG BRIDGE @ 4610' PULL LOGGING TOOLS OUT |
| | 20:00 - 0:00 | 4.00 | DRLPRO | 06 | F | X | | TRIP IN HOLE WITH TRI-CONE BIT TIGHT SPOTS NEED TO WASH AND REAM, 4600- 4700, 5120', 5600,7800' WITH 15' FILL ON BOTTOM |
| 3/9/2012 | 0:00 - 4:30 | 4.50 | DRLPRO | 06 | F | X | | TRIP IN HOLE WITH TRI-CONE BIT TIGHT SPOTS NEED TO WASH AND REAM, 4600- 4700, 5120', 5600,7800' REAM 9603 TO 9831 WITH 15' FILL ON BOTTOM |
| | 4:30 - 9:30 | 5.00 | DRLPRO | 05 | A | X | | CIRC. AND COND HOLE |
| | 9:30 - 12:30 | 3.00 | DRLPRO | 06 | F | X | | FLOW CHECK, PUMP PILL, TRIP OUT TO 2279' |
| | 12:30 - 13:00 | 0.50 | DRLPRO | 07 | A | P | | RIG SERVICE |
| | 13:00 - 16:30 | 3.50 | DRLPRO | 06 | F | X | | BACK IN TO 5000' CHECK BRIDGE @ 4610' OK. TRIP OUT. |
| | 16:30 - 21:30 | 5.00 | DRLPRO | 11 | D | X | | RIG UP HALLIBURTON LOGGERS, TAG BOTTOM @ 9831' / LOG F/ 9831' TO 2279' WITH TRIPLE COMBO OPEN HOLE LOGS RD LOGGERS |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | Rig Name No: H&P 311/311, PROPETRO 11/11 |
| Event: DRILLING | Start Date: 1/25/2012 | End Date: 3/10/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 21:30 - 0:00 | 2.50 | DRLPRO | 12 | C | P | | PULL WEAR BUSHING AND RIG UP CASING CREW. RUN FLOAT SHOE, SHOE JT FLOAT COLLAR, |
| 3/10/2012 | 0:00 - 10:00 | 10.00 | DRLPRO | 12 | C | P | | RUN 123 JTS & 1MARKER JT 4 1/2" HCP 110 11.6# LT&C & 115 JTS 4 1/2" HCP 110 11.6# DQX W/ SHOE SET @ 9816' & FLOAT COLLAR @ 9772' (TORQUE TURN DQX CASING) WASATCH MARKER JT @ 4822' & THE MESA VERDE MARKER JT @ 6375' BLACKHAWK MARKER @ 9201' |
| | 10:00 - 12:00 | 2.00 | DRLPRO | 22 | A | X | | WORK STUCK CASING @ 9585' PUMPED 1500 BBLS FRESH WATER AROUND UNTIL PIPE CAME FREE |
| | 12:00 - 13:00 | 1.00 | DRLPRO | 12 | C | P | | FINISH RUNNING CASING ,RD CASING CREWS |
| | 13:00 - 17:30 | 4.50 | DRLPRO | 12 | E | P | | HOLD SAFTEY MEETING,RU BJ CEMENTERS,PRESSURE TEST LINES TO 5000 PSI FOR 5 MIN. ,PUMPED 25 BBL PRE FLUSH 8.4 PPG H2O, LEAD CEMENT,13 PPG @1.77 CU/FT SK YIELD ,568 SKS,79 BBLS, TAIL CEMENT 14.3 PPG @ 1.31 CU/FT SK YIELD,1662 SKS,387 BBLS,DISPLACED 151 BBLS H2O W/CLAY CARE, FINAL LIFT PRESS 2825 PSI, BUMP PLUG T/3434 PSI HELD FOR 5 MIN BLEED OFF FLOAT HELD, 32 BBLS CEMENT TO SURF,EST. TOP OF TAIL 4423',R/D BJ CEMENTING EQUIP,FLUSH OUT BOPS & FLOWLINE |
| | 17:30 - 20:30 | 3.00 | DRLPRO | 01 | E | P | | NIPPLE DOWN BOPE,SET 4 1/2" CASING SLIPS W/100K ON SLIPS, CUT OFF CASING, CLEAN MUD TANKS, RIG RELEASED 20:30<br>GET READY TO SKID TO THE NBU 1022-2O4CS |

# 1 General

## 1.1 Customer Information

| | |
|---|---|
| **Company** | US ROCKIES REGION |
| **Representative** | |
| **Address** | |

## 1.2 Well/Wellbore Information

| | | | |
|---|---|---|---|
| **Well** | NBU 1022-2O4BS - PURPLE | **Wellbore No.** | OH |
| **Well Name** | NBU 1022-2O4BS | **Wellbore Name** | NBU 1022-2O4BS |
| **Report No.** | 1 | **Report Date** | 4/13/2012 |
| **Project** | UTAH-UINTAH | **Site** | NBU 1022-2P PAD |
| **Rig Name/No.** | ROYAL WELL SERVICE 2/2 | **Event** | COMPLETION |
| **Start Date** | 4/13/2012 | **End Date** | 5/2/2012 |
| **Spud Date** | 1/25/2012 | **Active Datum** | RKB @5,117.01ft (above Mean Sea Level) |
| **UWI** | SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

## 1.3 General

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | | **Job Method** | | **Supervisor** | |
| **Perforated Assembly** | | **Conveyed Method** | | | |

## 1.4 Initial Conditions

| | | | |
|---|---|---|---|
| **Fluid Type** | | **Fluid Density** | |
| **Surface Press** | | **Estimate Res Press** | |
| **TVD Fluid Top** | | **Fluid Head** | |
| **Hydrostatic Press** | | **Press Difference** | |
| **Balance Cond** | NEUTRAL | | |

## 1.5 Summary

| | | | |
|---|---|---|---|
| **Gross Interval** | 6,470.0 (ft)-9,385.0 (ft) | **Start Date/Time** | 4/13/2012 12:00AM |
| **No. of Intervals** | 42 | **End Date/Time** | 4/13/2012 12:00AM |
| **Total Shots** | 240 | **Net Perforation Interval** | 62.00 (ft) |
| **Avg Shot Density** | 3.87 (shot/ft) | **Final Surface Pressure** | |
| | | **Final Press Date** | |

# 2 Intervals

## 2.1 Perforated Interval

| Date | Formation/ Reservoir | CCL@ (ft) | CCL-TS (ft) | MD Top (ft) | MD Base (ft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,470.0 | 6,472.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |

## 2.1 Perforated Interval (Continued)

| Date | Formation/ Reservoir | CCL@ (ft) | CCL-TS (ft) | MD Top (ft) | MD Base (ft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,556.0 | 6,558.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,604.0 | 6,606.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,702.0 | 6,703.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,712.0 | 6,713.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,777.0 | 6,778.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,850.0 | 6,851.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,894.0 | 6,896.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,945.0 | 6,946.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 6,987.0 | 6,988.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,047.0 | 7,048.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,055.0 | 7,056.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,062.0 | 7,063.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,080.0 | 7,081.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,122.0 | 7,124.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,301.0 | 7,305.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,437.0 | 7,439.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,480.0 | 7,481.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,518.0 | 7,520.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,541.0 | 7,542.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,616.0 | 7,620.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,679.0 | 7,680.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |

## 2.1 Perforated Interval (Continued)

| Date | Formation/ Reservoir | CCL@ (ft) | CCL-TS (ft) | MD Top (ft) | MD Base (ft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,702.0 | 7,703.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,819.0 | 7,820.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,831.0 | 7,832.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,918.0 | 7,920.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,938.0 | 7,940.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,972.0 | 7,973.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 7,984.0 | 7,985.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,044.0 | 8,046.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,130.0 | 8,132.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,156.0 | 8,158.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,202.0 | 8,203.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,207.0 | 8,208.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,240.0 | 8,241.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,278.0 | 8,280.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 8,460.0 | 8,461.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 9,325.0 | 9,326.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 9,333.0 | 9,335.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 9,364.0 | 9,365.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 9,374.0 | 9,375.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 4/13/2012 12:00AM | MESAVERDE/ | | | 9,384.0 | 9,385.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |

# 3 Plots

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 | |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: ROYAL WELL SERVICE 2/2, ROYAL WELL SERVICE 2/2 |
| Event: COMPLETION | Start Date: 4/13/2012 | | End Date: 5/2/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 4/13/2012 | - | | | | | | | |
| 4/19/2012 | 12:25 - 12:36 | 0.18 | COMP | 48 | | P | | HSM & JSA W/B&C QUICK TEST. |
| | 12:36 - 13:48 | 1.20 | COMP | 33 | E | P | | WHP 0 PSI. FILL SURFACE CSG. MIRU B&C QUICK TEST.<br>PSI TEST T/ 1056 PSI. HELD FOR 15 MIN LOST 13 PSI.<br>PSI TEST T/ 3512 PSI. HELD FOR 15 MIN LOST 31 PSI.<br>1ST PSI TEST T/ 9031 PSI. HELD FOR 30 MIN LOST 69 PSI.<br>NO COMMUNICATION OR MIGRATION WITH SURFACE CSG<br>BLEED OFF PSI. MOVE T/ NEXT WELL. SWIFN |
| 4/20/2012 | 7:30 - 7:45 | 0.25 | COMP | 48 | | P | | HSM & JSA W/CASEDHOLE SOLUATIONS. |
| | 10:15 - 11:30 | 1.25 | COMP | 37 | B | P | | WHP 0 PSI - MIRU CASEDHOLE SOLUATIONS. PERF STG 1) P/U 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. PERF LOWER M.V. AS PER PERF DESIGN. POOH & HANG BACK LUB. SWI – SDFN. |
| 4/23/2012 | 6:45 - 7:00 | 0.25 | COMP | 48 | | P | | HSM & JSA W/SUPERIOR WELL SERVICE & CASEDHOLE SOLUATIONS |
| | 7:40 - 8:08 | 0.47 | COMP | 36 | E | P | | MIRU SUPERIOR WELL SERVICE. PT SURFACE EQUIP. TO 9500 PSI. LOST 200# IN 15 MIN.<br><br>FRAC STG 1) WHP 730 PSI. BRK DWN PERF 4.7 BPM @ 4003 PSI.<br>ISIP 3331 PSI. F.G. 0.79. EST INJ RATE 49.9 BPM @ 5766 PSI.<br>24/24 PERFS OPEN - 100%.<br>MP 7915 PSI, MR 50.3 BPM, AP 6037 PSI, AR 49.8 BPM. ISIP 3481 PSI,<br>F.G. 0.81, NPI 150 PSI. PMP'D 1205 BBLS SLK WTR, 22,090 LBS 30/50 SND. X-OVER FOR WL. |
| | 8:13 - 9:10 | 0.95 | COMP | 37 | B | P | | PERF STG 2) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 8491'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 9:15 - 9:35 | 0.33 | COMP | 36 | E | P | | FRAC STG 2) WHP 1515 PSI. BRK DWN PERF 4.6 BPM @ 3096 PSI. ISIP 2468 PSI. FG. 0.73. EST INJ RATE 49.6 BPM @ 4957 PSI. 24/24 PERFS OPEN - 100%.<br>MP 5060 PSI, MR 50.4 BPM, AP 5303 PSI, AR 49.9 BPM. ISIP 2534 PSI, FG. 0.74, NPI 66 PSI. PMP'D 643 BBLS SLK WTR, 11,152 LBS 30/50 SND. X-OVER FOR WL. |
| | 9:40 - 10:40 | 1.00 | COMP | 37 | B | P | | PERF STG 3) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 120 DEG PHSG. RIH SET CBP @ 8188'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | Rig Name No: ROYAL WELL SERVICE 2/2, ROYAL WELL SERVICE 2/2 |
| Event: COMPLETION | Start Date: 4/13/2012 | End Date: 5/2/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 11:00 - 11:40 | 0.67 | COMP | 36 | E | P | | FRAC STG 3) WHP 1910 PSI. BRK DWN PERF 3.6 BPM @ 2750 PSI. ISIP 1926 PSI. FG. 0.68. EST INJ RATE 52.1 BPM @ 5084 PSI. 22/24 PERFS OPEN - 91%. MP 6307 PSI, MR 52.3 BPM, AP 5469 PSI, AR 51.9 BPM. ISIP 2523 PSI, FG. 0.75, NPI 5970 PSI. PMP'D 1582 BBLS SLK WTR, 33,789 LBS 30/50 SND. X-OVER FOR WL. |
| | 11:45 - 12:45 | 1.00 | COMP | 37 | B | P | | PERF STG 4) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 120 DEG PHSG. RIH SET CBP @ 8015'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 13:15 - 13:43 | 0.47 | COMP | 36 | E | P | | FRAC STG 4) WHP 1745 PSI. BRK DWN PERF 4 BPM @ 3254 PSI. ISIP 2364 PSI. FG. 0.79. EST INJ RATE 52 BPM @ 5279 PSI. 23/24 PERFS OPEN - 97%. MP 5859 PSI, MR 52.4 BPM, AP 5250 PSI, AR 52 BPM. ISIP 2753 PSI, FG. 0.79, NPI 389 PSI. PMP'D 1135 BBLS SLK WTR, 23,440 LBS 30/50 SND. X-OVER FOR WL. |
| | 13:48 - 14:48 | 1.00 | COMP | 37 | B | P | | PERF STG 5) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 7733'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 14:48 - 15:07 | 0.32 | COMP | 36 | E | P | | FRAC STG 5) WHP 1825 PSI. BRK DWN PERF 3.2 BPM @ 6017 PSI. ISIP 2009 PSI. FG. 0.70. EST INJ RATE 52 BPM @ 4755 PSI. 24/24 PERFS OPEN - 100%. MP 6497 PSI, MR 52.6 BPM, AP 4776 PSI, AR 52.1 BPM. ISIP 2210 PSI, FG. 0.73, NPI 201 PSI. PMP'D 789 BBLS SLK WTR, 15,429 LBS 30/50 SND. X-OVER FOR WL. |
| | 15:37 - 16:37 | 1.00 | COMP | 37 | B | P | | PERF STG 6) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 7572'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 16:37 - 17:03 | 0.43 | COMP | 36 | E | P | | FRAC STG 6) WHP 1662 PSI. BRK DWN PERF 4.5 BPM @ 2797 PSI. ISIP 1822 PSI. FG. 0.68. EST INJ RATE 54.4 BPM @ 4643 PSI. 24/24 PERFS OPEN - 100%. MP 5723 PSI, MR 54.3 BPM, AP 5089 PSI, AR 54 BPM. ISIP 2284 PSI, FG. 0.74, NPI 462 PSI. PMP'D 1,065 BBLS SLK WTR, 21,980 LBS 30/50 SND. X-OVER FOR WL. SWI - SDFN. |
| 4/24/2012 | 6:15 - 6:30 | 0.25 | COMP | 48 | | P | | HSM & JSA W/SUPERIOR WELL SERVICE & CASEDHOLE SOLUATIONS |
| | 6:30 - 7:30 | 1.00 | COMP | 37 | B | P | | PERF STG 7) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 7335'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: ROYAL WELL SERVICE 2/2, ROYAL WELL SERVICE 2/2 |
| Event: COMPLETION | Start Date: 4/13/2012 | | End Date: 5/2/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 8:05 - 8:27 | 0.37 | COMP | 36 | E | P | | FRAC STG 7) WHP 468 PSI. BRK DWN PERF 4.1 BPM @ 2606 PSI. ISIP 1516 PSI. FG. 0.65. EST INJ RATE 53.9 BPM @ 4324 PSI. 24/24 PERFS OPEN - 100%. MP 5537 PSI, MR 54.2 BPM, AP 4930 PSI, AR 53.8 BPM. ISIP 2102 PSI, FG. 0.73, NPI 586 PSI. PMP'D 931 BBLS SLK WTR, 18,676 LBS 30/50 SND. X-OVER FOR WL. |
| | 8:27 - 9:17 | 0.83 | COMP | 37 | B | P | | PERF STG 8) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 7111'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 9:59 - 10:15 | 0.27 | COMP | 36 | E | P | | FRAC STG 8) WHP 1760 PSI. BRK DWN PERF 4.5 BPM @ 2280 PSI. ISIP 1796 PSI. FG. 0.69. EST INJ RATE 50 BPM @ 4090 PSI. 24/24 PERFS OPEN - 100%. MP 5366 PSI, MR 50.3 BPM, AP 4535 PSI, AR 50 BPM. ISIP 2172 PSI, FG. 0.75, NPI 376 PSI. PMP'D 634 BBLS SLK WTR, 11,585 LBS 30/50 SND. X-OVER FOR WL. |
| | 10:20 - 11:10 | 0.83 | COMP | 37 | B | P | | PERF STG 9) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 6926'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 12:15 - 12:33 | 0.30 | COMP | 36 | E | P | | FRAC STG 9) WHP 1220 PSI. BRK DWN PERF 3.2 BPM @ 2584 PSI. ISIP 1577 PSI. FG. 0.67. EST INJ RATE 49.7 BPM @ 5242 PSI. 21/24 PERFS OPEN - 71%. MP 6255 PSI, MR 50.3 BPM, AP 4981 PSI, AR 50 BPM. ISIP 2471 PSI, FG. 0.80, NPI 894 PSI. PMP'D 750 BBLS SLK WTR, 14,742 LBS 30/50 SND. X-OVER FOR WL. |
| | 12:38 - 13:28 | 0.83 | COMP | 37 | B | P | | PERF STG 10) P/U HALCO 8K CBP & 3 1/8" EXP GNS, 23 GRM, 0.36 HOLE, 90 DEG PHSG. RIH SET CBP @ 6636'. PERF MESA VERDE AS PER PERF DESIGN. POOH & HANG BACK LUB. X-OVER FOR FRAC |
| | 13:54 - 14:40 | 0.77 | COMP | 36 | E | | | FRAC STG 10) WHP 168 PSI. BRK DWN PERF 4.2 BPM @ 2453 PSI. ISIP 936 PSI. FG. 0.58. EST INJ RATE 50.2 BPM @ 4137 PSI. 19/24 PERFS OPEN - 79%. MP 4990 PSI, MR 50.3 BPM, AP 4338 PSI, AR 50.1 BPM. ISIP 2331 PSI, FG. 0.80, NPI 1395 PSI. PMP'D 1853 BBLS SLK WTR, 38,074 LBS 30/50 SND. X-OVER FOR WL. |
| | 14:45 - 15:35 | 0.83 | COMP | 34 | I | P | | KILL PLUG) RIH W/HALCO 8K CBP & SETL @ 6420'. POOH & HNG BK LUB. SWI - SDFN. |
| 5/2/2012 | 6:46 - 7:00 | 0.23 | COMP | 48 | | P | | HSM, JSA |
| | 7:00 - 10:00 | 3.00 | COMP | 31 | I | P | | P/U TBG, TALLY IN HOLE, TAG @ 6386' |
| | 9:30 - 9:50 | 0.33 | COMP | 47 | B | P | | PRESS TEST BOP'S TO 3,000 PSI FOR 15 MIN, LOST 0 PSI |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: ROYAL WELL SERVICE 2/2, ROYAL WELL SERVICE 2/2 |
| Event: COMPLETION | Start Date: 4/13/2012 | | End Date: 5/2/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 9:50 - 17:30 | 7.67 | COMP | 44 | C | P | | MIRU PWR SWVL & NEW WASHINGTON RUBBER<br><br>C/O 24' SAND, TAG 1ST PLUG @ 6,435' DRL PLUG IN 3 MIN. 0 PSI INCREASE RIH, CSG PRESS 0 PSI.<br><br>C/O 32' SAND, TAG 2ND PLUG @ 6,639' DRL PLUG IN 7 MIN. 0 PSI INCREASE RIH, CSG PRESS 500 PSI.<br><br>C/O 3' SAND, TAG 3RD PLUG @ 6,938' DRL PLUG IN 5 MIN. 200 PSI INCREASE RIH, CSG PRESS 900 PSI.<br><br>C/O 20' SAND, TAG 4TH PLUG @ 7,108' DRL PLUG IN 3 MIN. 200 PSI INCREASE RIH, CSG PRESS 700 PSI.<br><br>C/O 17' SAND, TAG 5TH PLUG @ 7,340' DRL PLUG IN 8 MIN. 0 PSI INCREASE RIH, CSG PRESS 500 PSI.<br><br>C/O 27' SAND, TAG 6TH PLUG @ 7,577' DRL PLUG IN 3 MIN. 0 PSI INCREASE RIH, CSG PRESS 550 PSI.<br><br>C/O 27' SAND, TAG 7TH PLUG @ 7,737' DRL PLUG IN 5 MIN. 0 PSI INCREASE RIH, CSG PRESS 750 PSI.<br><br>C/O 29' SAND, TAG 8TH PLUG @ 8,020' DRL PLUG IN 5 MIN. 600 PSI INCREASE RIH, CSG PRESS 700 PSI.<br><br>C/O 28' SAND, TAG 9TH PLUG @ 8,191' DRL PLUG IN 8 MIN. 600 PSI INCREASE RIH, CSG PRESS 700 PSI.<br><br>C/O 25' SAND, TAG 10TH PLUG @ 8,495' DRL PLUG IN 6 MIN. 700 PSI INCREASE RIH, CSG PRESS 600 PSI.<br><br>PBTD @ 9,771', BTM PERF @ 9,385', RIH TO 9,597', NO TAG', 212' PAST BTM PERF W/ 303 JTS 2 3/8" L-80 TBG, LD 46 JTS, PU & STRIP IN TBG HANGER & LAND TBG W/ 257 JTS 2 3/8" L-80, EOT 8,171.39'.<br><br>RD POWER SWIVEL, FLOOR & TBG EQUIP, ND BOPS, NU WH, DROP BALL TO SHEAR OFF BIT W/ 1,000 PSI, LET BIT FALL FOR 20 MIN.<br><br>TURN OVER TO FLOW BACK CREW, RD & MOVE TO NEXT WELL ON PAD.<br><br>KB= 25'<br>4 1/16" WEATHERFORD HANGER= .83' TBG<br>DELIVERED 315 JTS<br>257 JTS 2 3/8" L-80 = 8,143.36'<br>TBG USED 257 JTS<br>POBS= 2.20'<br>TBG RETURNED 58 JTS |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 1022-2O4BS - PURPLE | | | Spud Date: 1/25/2012 |
| Project: UTAH-UINTAH | Site: NBU 1022-2P PAD | | Rig Name No: ROYAL WELL SERVICE 2/2, ROYAL WELL SERVICE 2/2 |
| Event: COMPLETION | Start Date: 4/13/2012 | | End Date: 5/2/2012 |
| Active Datum: RKB @5,117.01ft (above Mean Sea Level) | UWI: SW/SE/0/10/S/22/E/2/0/0/26/PM/S/221/E/0/1392/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (ft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | EOT @8,171.39'<br><br>TWTR= 10,596 BBLS<br>TWR= 1,500 BBLS<br>TWLTR= 9,096 BBLS |
| | 17:30 - 17:45 | 0.25 | COMP | 50 | | | | WELL TURNED TO SALES @ 17:45 HR ON 5/2/2012, -1800 MCFD, 1920 BWPD, FCP 2360#, FTP 1980#, 20/64" |
| 5/12/2012 | 7:00 - | | | 50 | | | | WELL IP'D ON 5/12/12 - 3989 MCFD, 0 BOPD, 120 BWPD, CP 2340#, FTP 1974#, CK 20/64", LP 132#, 24 HRS |
| 5/13/2012 | - | | | | | | | |

Scientific Drilling
Rocky Mountain Operations

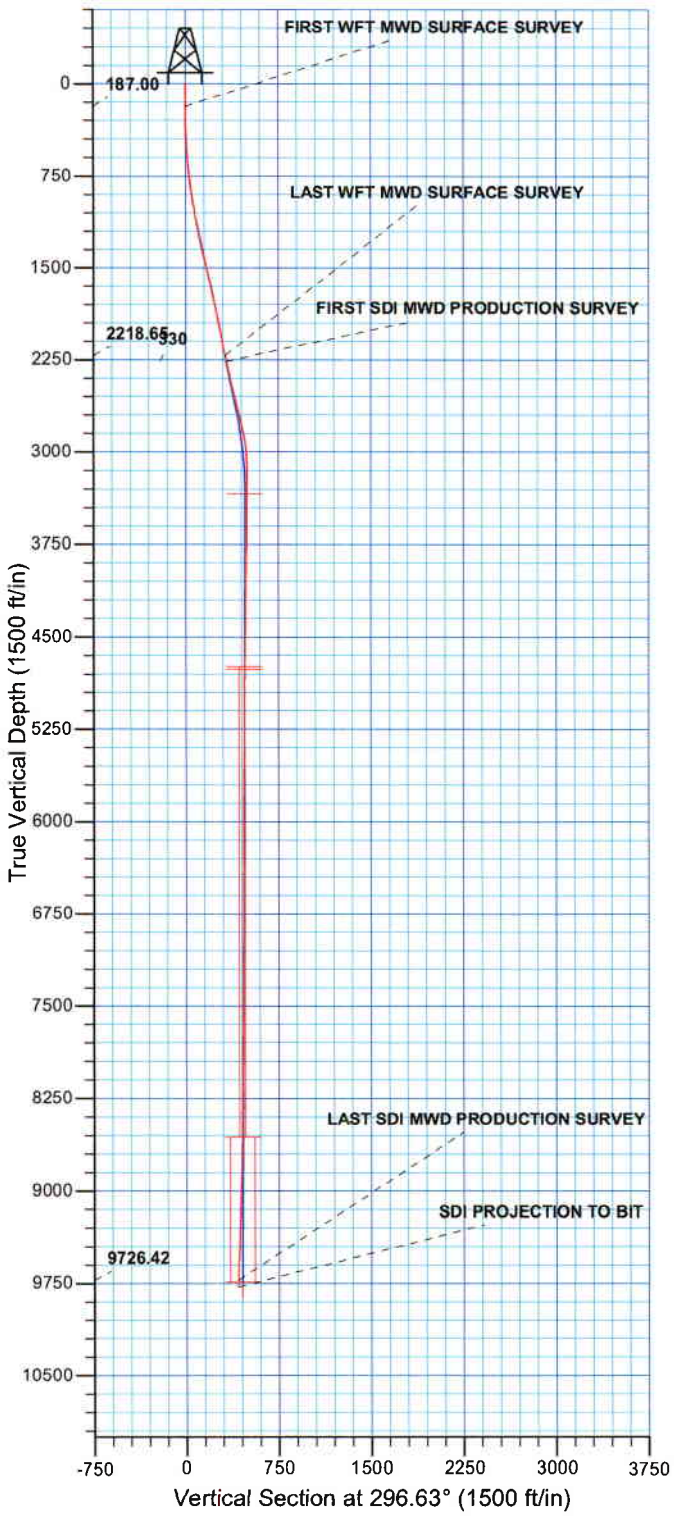
**Project:** Uintah County, UT UTM12
**Site:** NBU 1022-2P PAD
**Well:** NBU 1022-2O4BS
**Wellbore:** OH
**Design:** OH

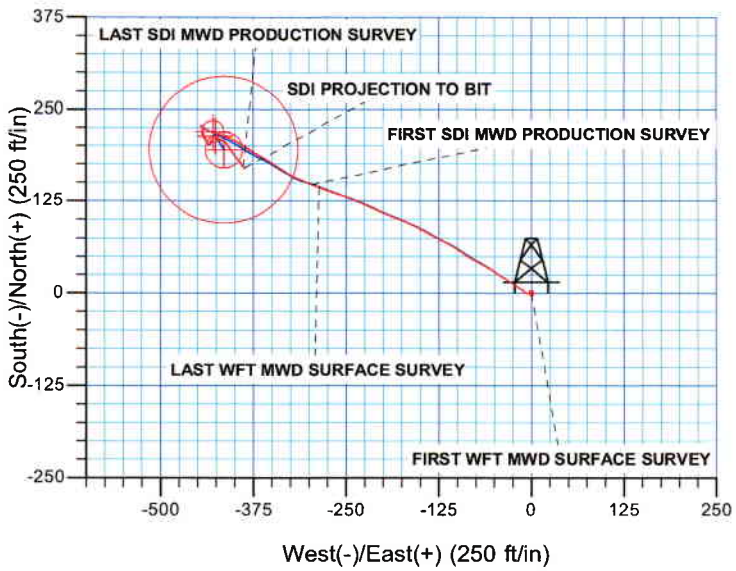
Anadarko Petroleum Corporation

| WELL DETAILS: NBU 1022-2O4BS | | | | | |
|---|---|---|---|---|---|
| GL 5092' & KB 21' @ 5113.00ft (HP 311) | | | | | |
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| 0.00 | 0.00 | 14519618.95 | 2088158.37 | 39.971337 | -109.401960 |


Azimuths to True North
Magnetic North: 11.02°

Magnetic Field
Strength: 52316.2snT
Dip Angle: 65.86°
Date: 07/21/2011
Model: IGRF2010




| PROJECT DETAILS: Uintah County, UT UTM12 | |
|---|---|
| Geodetic System: | Universal Transverse Mercator (US Survey Feet) |
| Datum: | NAD 1927 - Western US |
| Ellipsoid: | Clarke 1866 |
| Zone: | Zone 12N (114 W to 108 W) |
| Location: | SECTION 2 T10S R22E |
| System Datum: | Mean Sea Level |

Design: OH (NBU 1022-2O4BS/OH)

Created By: Gabe Kendall Date: 15:41, March 12 2012

Scientific Drilling
Rocky Mountain Operations

# Kerr McGee Oil and Gas Onshore LP

**Uintah County, UT UTM12**
**NBU 1022-2P PAD**
**NBU 1022-2O4BS**

**OH**

**Design: OH**

# Standard Survey Report

**12 March, 2012**

Anadarko
Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Project** Uintah County, UT UTM12

| | | | |
|---|---|---|---|
| **Map System:** | Universal Transverse Mercator (US Survey Feet) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 - Western US | | |
| **Map Zone:** | Zone 12N (114 W to 108 W) | | |

**Site** NBU 1022-2P PAD, SECTION 2 T10S R22E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,519,620.58 usft | **Latitude:** | 39.971339 |
| **From:** | Lat/Long | **Easting:** | 2,088,208.52 usft | **Longitude:** | -109.401781 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 1.03 ° |

**Well** NBU 1022-2O4BS, 221 FSL 1392 FEL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 14,519,618.96 usft | **Latitude:** | 39.971337 |
| | **+E/-W** | 0.00 ft | **Easting:** | 2,088,158.37 usft | **Longitude:** | -109.401960 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 5,092.00 ft |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 07/21/11 | 11.02 | 65.86 | 52,316 |

**Design** OH

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | 1.0 | **Phase:** | ACTUAL | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 296.63 |

**Survey Program** **Date** 03/12/12

| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 21.00 | 2,249.00 | Survey #1 WFT MWD SURFACE (OH) | MWD | MWD - Standard |
| 2,298.00 | 9,831.00 | Survey #2 SDI MWD PRODUCTION (OH) | MWD SDI | MWD - Standard ver 1.0.1 |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21.00 | 0.00 | 0.00 | 21.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 187.00 | 0.28 | 177.21 | 187.00 | -0.41 | 0.02 | -0.20 | 0.17 | 0.17 | 0.00 |
| **FIRST WFT MWD SURFACE SURVEY** | | | | | | | | | |
| 272.00 | 0.93 | 251.61 | 271.99 | -0.83 | -0.62 | 0.19 | 1.05 | 0.76 | 87.53 |
| 357.00 | 2.33 | 271.77 | 356.96 | -0.99 | -3.01 | 2.24 | 1.76 | 1.65 | 23.72 |
| 447.00 | 3.13 | 293.99 | 446.86 | 0.06 | -7.08 | 6.36 | 1.46 | 0.89 | 24.69 |
| 537.00 | 3.56 | 307.49 | 536.71 | 2.76 | -11.54 | 11.56 | 0.99 | 0.48 | 15.00 |
| 627.00 | 4.56 | 308.24 | 626.48 | 6.68 | -16.57 | 17.80 | 1.11 | 1.11 | 0.83 |
| 717.00 | 5.94 | 305.87 | 716.10 | 11.62 | -23.15 | 25.91 | 1.55 | 1.53 | -2.63 |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 807.00 | 6.88 | 303.37 | 805.54 | 17.31 | -31.43 | 35.86 | 1.09 | 1.04 | -2.78 |
| 897.00 | 8.19 | 301.49 | 894.76 | 23.63 | -41.40 | 47.60 | 1.48 | 1.46 | -2.09 |
| 987.00 | 9.63 | 301.49 | 983.67 | 30.91 | -53.28 | 61.49 | 1.60 | 1.60 | 0.00 |
| 1,077.00 | 10.94 | 301.87 | 1,072.22 | 39.35 | -66.96 | 77.49 | 1.46 | 1.46 | 0.42 |
| 1,167.00 | 11.38 | 301.87 | 1,160.52 | 48.55 | -81.75 | 94.84 | 0.49 | 0.49 | 0.00 |
| 1,257.00 | 12.50 | 302.37 | 1,248.57 | 58.45 | -97.52 | 113.37 | 1.25 | 1.24 | 0.56 |
| 1,347.00 | 12.69 | 299.62 | 1,336.41 | 68.55 | -114.34 | 132.94 | 0.70 | 0.21 | -3.06 |
| 1,437.00 | 12.69 | 297.12 | 1,424.21 | 77.94 | -131.73 | 152.69 | 0.61 | 0.00 | -2.78 |
| 1,527.00 | 12.75 | 295.99 | 1,512.00 | 86.80 | -149.46 | 172.51 | 0.28 | 0.07 | -1.26 |
| 1,617.00 | 13.50 | 295.12 | 1,599.65 | 95.61 | -167.89 | 192.94 | 0.86 | 0.83 | -0.97 |
| 1,707.00 | 12.44 | 292.99 | 1,687.35 | 103.86 | -186.33 | 213.12 | 1.29 | -1.18 | -2.37 |
| 1,797.00 | 11.81 | 291.87 | 1,775.34 | 111.08 | -203.80 | 231.97 | 0.75 | -0.70 | -1.24 |
| 1,887.00 | 11.50 | 291.87 | 1,863.49 | 117.85 | -220.67 | 250.09 | 0.34 | -0.34 | 0.00 |
| 1,977.00 | 11.50 | 294.99 | 1,951.68 | 124.98 | -237.13 | 268.00 | 0.69 | 0.00 | 3.47 |
| 2,067.00 | 11.19 | 290.24 | 2,039.92 | 131.79 | -253.46 | 285.64 | 1.09 | -0.34 | -5.28 |
| 2,157.00 | 10.31 | 289.24 | 2,128.34 | 137.47 | -269.26 | 302.31 | 1.00 | -0.98 | -1.11 |
| 2,249.00 | 11.67 | 289.74 | 2,218.65 | 143.32 | -285.79 | 319.71 | 1.48 | 1.48 | 0.54 |
| **LAST WFT MWD SURFACE SURVEY** | | | | | | | | | |
| 2,298.00 | 11.61 | 287.97 | 2,266.65 | 146.52 | -295.14 | 329.51 | 0.74 | -0.12 | -3.61 |
| **FIRST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 2,392.00 | 14.60 | 296.58 | 2,358.20 | 154.74 | -314.74 | 350.71 | 3.79 | 3.18 | 9.16 |
| 2,487.00 | 14.60 | 304.05 | 2,450.14 | 166.80 | -335.37 | 374.56 | 1.98 | 0.00 | 7.86 |
| 2,581.00 | 13.54 | 300.27 | 2,541.32 | 178.98 | -354.69 | 397.29 | 1.49 | -1.13 | -4.02 |
| 2,675.00 | 13.81 | 303.97 | 2,632.66 | 190.80 | -373.50 | 419.40 | 0.97 | 0.29 | 3.94 |
| 2,770.00 | 13.10 | 300.89 | 2,725.05 | 202.66 | -392.14 | 441.38 | 1.06 | -0.75 | -3.24 |
| 2,864.00 | 12.66 | 292.28 | 2,816.69 | 212.04 | -410.82 | 462.28 | 2.09 | -0.47 | -9.16 |
| 2,958.00 | 9.15 | 287.79 | 2,908.98 | 218.23 | -427.47 | 479.94 | 3.84 | -3.73 | -4.78 |
| 3,053.00 | 5.28 | 297.99 | 3,003.22 | 222.59 | -438.53 | 491.78 | 4.28 | -4.07 | 10.74 |
| 3,147.00 | 2.46 | 307.83 | 3,096.99 | 225.86 | -443.94 | 498.08 | 3.07 | -3.00 | 10.47 |
| 3,242.00 | 0.88 | 97.95 | 3,191.97 | 227.01 | -444.83 | 499.39 | 3.42 | -1.66 | 158.02 |
| 3,336.00 | 0.79 | 146.55 | 3,285.96 | 226.37 | -443.76 | 498.15 | 0.74 | -0.10 | 51.70 |
| 3,430.00 | 0.79 | 152.53 | 3,379.95 | 225.25 | -443.10 | 497.06 | 0.09 | 0.00 | 6.36 |
| 3,525.00 | 1.32 | 150.51 | 3,474.93 | 223.72 | -442.26 | 495.62 | 0.56 | 0.56 | -2.13 |
| 3,619.00 | 0.26 | 236.99 | 3,568.93 | 222.66 | -441.91 | 494.83 | 1.41 | -1.13 | 92.00 |
| 3,713.00 | 0.98 | 227.13 | 3,662.92 | 222.00 | -442.67 | 495.22 | 0.77 | 0.77 | -10.49 |
| 3,808.00 | 1.67 | 166.77 | 3,757.90 | 220.09 | -442.95 | 494.62 | 1.54 | 0.73 | -63.54 |
| 3,902.00 | 1.67 | 158.33 | 3,851.86 | 217.49 | -442.13 | 492.72 | 0.26 | 0.00 | -8.98 |
| 3,997.00 | 1.76 | 157.19 | 3,946.81 | 214.86 | -441.06 | 490.57 | 0.10 | 0.09 | -1.20 |
| 4,091.00 | 1.67 | 162.64 | 4,040.77 | 212.22 | -440.09 | 488.53 | 0.20 | -0.10 | 5.80 |
| 4,186.00 | 1.85 | 161.23 | 4,135.73 | 209.45 | -439.18 | 486.47 | 0.19 | 0.19 | -1.48 |
| 4,280.00 | 0.35 | 172.74 | 4,229.71 | 207.72 | -438.66 | 485.23 | 1.60 | -1.60 | 12.24 |
| 4,374.00 | 0.44 | 165.10 | 4,323.71 | 207.09 | -438.53 | 484.83 | 0.11 | 0.10 | -8.13 |
| 4,469.00 | 0.70 | 169.23 | 4,418.70 | 206.17 | -438.33 | 484.24 | 0.28 | 0.27 | 4.35 |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,563.00 | 0.97 | 178.02 | 4,512.69 | 204.81 | -438.19 | 483.51 | 0.32 | 0.29 | 9.35 |
| 4,657.00 | 1.41 | 132.75 | 4,606.67 | 203.23 | -437.31 | 482.02 | 1.07 | 0.47 | -48.16 |
| 4,752.00 | 1.67 | 122.56 | 4,701.64 | 201.69 | -435.29 | 479.52 | 0.40 | 0.27 | -10.73 |
| 4,846.00 | 1.14 | 45.30 | 4,795.62 | 201.61 | -433.47 | 477.86 | 1.92 | -0.56 | -82.19 |
| 4,940.00 | 0.79 | 48.56 | 4,889.60 | 202.70 | -432.32 | 477.31 | 0.38 | -0.37 | 3.47 |
| 5,035.00 | 1.93 | 17.79 | 4,984.58 | 204.65 | -431.34 | 477.32 | 1.38 | 1.20 | -32.39 |
| 5,129.00 | 1.85 | 15.24 | 5,078.52 | 207.63 | -430.46 | 477.86 | 0.12 | -0.09 | -2.71 |
| 5,223.00 | 1.49 | 28.52 | 5,172.49 | 210.16 | -429.48 | 478.12 | 0.56 | -0.38 | 14.13 |
| 5,318.00 | 1.32 | 17.18 | 5,267.46 | 212.29 | -428.56 | 478.26 | 0.34 | -0.18 | -11.94 |
| 5,412.00 | 1.14 | 105.42 | 5,361.44 | 213.08 | -427.34 | 477.52 | 1.83 | -0.19 | 93.87 |
| 5,506.00 | 1.06 | 124.84 | 5,455.42 | 212.33 | -425.73 | 475.74 | 0.40 | -0.09 | 20.66 |
| 5,601.00 | 1.32 | 121.42 | 5,550.40 | 211.26 | -424.07 | 473.78 | 0.28 | 0.27 | -3.60 |
| 5,695.00 | 1.67 | 131.96 | 5,644.37 | 209.78 | -422.13 | 471.38 | 0.47 | 0.37 | 11.21 |
| 5,790.00 | 0.35 | 85.56 | 5,739.36 | 208.88 | -420.81 | 469.80 | 1.53 | -1.39 | -48.84 |
| 5,884.00 | 0.53 | 124.05 | 5,833.35 | 208.66 | -420.16 | 469.12 | 0.36 | 0.19 | 40.95 |
| 5,978.00 | 0.51 | 115.92 | 5,927.35 | 208.23 | -419.43 | 468.27 | 0.08 | -0.02 | -8.65 |
| 6,073.00 | 1.32 | 279.36 | 6,022.34 | 208.22 | -420.13 | 468.89 | 1.91 | 0.85 | 172.04 |
| 6,167.00 | 1.09 | 272.15 | 6,116.32 | 208.43 | -422.09 | 470.74 | 0.29 | -0.24 | -7.67 |
| 6,261.00 | 0.97 | 257.21 | 6,210.31 | 208.29 | -423.76 | 472.17 | 0.31 | -0.13 | -15.89 |
| 6,356.00 | 0.70 | 239.81 | 6,305.30 | 207.82 | -425.04 | 473.11 | 0.39 | -0.28 | -18.32 |
| 6,450.00 | 0.79 | 233.04 | 6,399.29 | 207.14 | -426.06 | 473.71 | 0.13 | 0.10 | -7.20 |
| 6,544.00 | 0.79 | 86.96 | 6,493.29 | 206.79 | -425.93 | 473.43 | 1.61 | 0.00 | -155.40 |
| 6,639.00 | 0.88 | 3.56 | 6,588.28 | 207.55 | -425.23 | 473.15 | 1.17 | 0.09 | -87.79 |
| 6,733.00 | 0.70 | 38.45 | 6,682.27 | 208.72 | -424.83 | 473.32 | 0.54 | -0.19 | 37.12 |
| 6,828.00 | 0.26 | 81.25 | 6,777.27 | 209.21 | -424.25 | 473.02 | 0.57 | -0.46 | 45.05 |
| 6,922.00 | 0.53 | 112.98 | 6,871.27 | 209.07 | -423.64 | 472.41 | 0.36 | 0.29 | 33.76 |
| 7,016.00 | 0.35 | 307.48 | 6,965.26 | 209.08 | -423.47 | 472.26 | 0.93 | -0.19 | -176.06 |
| 7,111.00 | 0.26 | 6.19 | 7,060.26 | 209.47 | -423.68 | 472.62 | 0.33 | -0.09 | 61.80 |
| 7,205.00 | 0.35 | 104.01 | 7,154.26 | 209.61 | -423.38 | 472.42 | 0.49 | 0.10 | 104.06 |
| 7,299.00 | 0.70 | 129.15 | 7,248.26 | 209.18 | -422.65 | 471.58 | 0.44 | 0.37 | 26.74 |
| 7,394.00 | 0.70 | 338.59 | 7,343.26 | 209.35 | -422.41 | 471.44 | 1.43 | 0.00 | -158.48 |
| 7,488.00 | 0.18 | 99.09 | 7,437.25 | 209.86 | -422.48 | 471.73 | 0.86 | -0.55 | 128.19 |
| 7,582.00 | 0.44 | 136.27 | 7,531.25 | 209.58 | -422.08 | 471.25 | 0.34 | 0.28 | 39.55 |
| 7,677.00 | 0.79 | 132.14 | 7,626.25 | 208.88 | -421.34 | 470.27 | 0.37 | 0.37 | -4.35 |
| 7,771.00 | 1.32 | 114.82 | 7,720.23 | 207.99 | -419.88 | 468.56 | 0.65 | 0.56 | -18.43 |
| 7,865.00 | 0.53 | 110.43 | 7,814.22 | 207.38 | -418.49 | 467.05 | 0.84 | -0.84 | -4.67 |
| 7,960.00 | 0.35 | 300.10 | 7,909.22 | 207.37 | -418.33 | 466.90 | 0.92 | -0.19 | -179.29 |
| 8,054.00 | 0.09 | 11.03 | 8,003.22 | 207.59 | -418.56 | 467.21 | 0.35 | -0.28 | 75.46 |
| 8,148.00 | 0.44 | 96.54 | 8,097.21 | 207.62 | -418.19 | 466.89 | 0.47 | 0.37 | 90.97 |
| 8,243.00 | 0.70 | 90.48 | 8,192.21 | 207.57 | -417.25 | 466.03 | 0.28 | 0.27 | -6.38 |
| 8,337.00 | 0.88 | 119.40 | 8,286.20 | 207.21 | -416.05 | 464.79 | 0.46 | 0.19 | 30.77 |
| 8,431.00 | 1.23 | 116.93 | 8,380.18 | 206.40 | -414.52 | 463.06 | 0.38 | 0.37 | -2.63 |
| 8,526.00 | 1.14 | 131.52 | 8,475.16 | 205.31 | -412.90 | 461.13 | 0.33 | -0.09 | 15.36 |
| 8,620.00 | 1.58 | 144.71 | 8,569.14 | 203.64 | -411.45 | 459.08 | 0.57 | 0.47 | 14.03 |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 8,714.00 | 1.58 | 149.81 | 8,663.10 | 201.46 | -410.05 | 456.85 | 0.15 | 0.00 | 5.43 |
| 8,809.00 | 1.93 | 144.53 | 8,758.06 | 199.02 | -408.46 | 454.34 | 0.41 | 0.37 | -5.56 |
| 8,903.00 | 1.93 | 141.90 | 8,852.00 | 196.49 | -406.57 | 451.51 | 0.09 | 0.00 | -2.80 |
| 8,997.00 | 1.58 | 139.17 | 8,945.96 | 194.26 | -404.75 | 448.88 | 0.38 | -0.37 | -2.90 |
| 9,092.00 | 1.93 | 143.92 | 9,040.92 | 191.98 | -402.95 | 446.25 | 0.40 | 0.37 | 5.00 |
| 9,186.00 | 2.15 | 145.71 | 9,134.86 | 189.24 | -401.02 | 443.30 | 0.24 | 0.23 | 1.90 |
| 9,281.00 | 2.11 | 149.01 | 9,229.79 | 186.27 | -399.12 | 440.27 | 0.14 | -0.04 | 3.47 |
| 9,375.00 | 2.20 | 138.99 | 9,323.72 | 183.43 | -397.04 | 437.14 | 0.41 | 0.10 | -10.66 |
| 9,470.00 | 2.20 | 143.65 | 9,418.65 | 180.58 | -394.76 | 433.83 | 0.19 | 0.00 | 4.91 |
| 9,564.00 | 2.02 | 141.02 | 9,512.59 | 177.84 | -392.65 | 430.71 | 0.22 | -0.19 | -2.80 |
| 9,659.00 | 2.37 | 147.78 | 9,607.52 | 174.88 | -390.55 | 427.51 | 0.46 | 0.37 | 7.12 |
| 9,778.00 | 2.46 | 140.75 | 9,726.42 | 170.82 | -387.63 | 423.07 | 0.26 | 0.08 | -5.91 |
| **LAST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 9,831.00 | 2.46 | 140.75 | 9,779.37 | 169.06 | -386.19 | 420.99 | 0.00 | 0.00 | 0.00 |
| **SDI PROJECTION TO BIT** | | | | | | | | | |

**Design Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 187.00 | 187.00 | -0.41 | 0.02 | FIRST WFT MWD SURFACE SURVEY |
| 2,249.00 | 2,218.65 | 143.32 | -285.79 | LAST WFT MWD SURFACE SURVEY |
| 2,298.00 | 2,266.65 | 146.52 | -295.14 | FIRST SDI MWD PRODUCTION SURVEY |
| 9,778.00 | 9,726.42 | 170.82 | -387.63 | LAST SDI MWD PRODUCTION SURVEY |
| 9,831.00 | 9,779.37 | 169.06 | -386.19 | SDI PROJECTION TO BIT |

Checked By: _____ Approved By: _____ Date: _____

Scientific Drilling
Rocky Mountain Operations

# Kerr McGee Oil and Gas Onshore LP

**Uintah County, UT UTM12**
**NBU 1022-2P PAD**
**NBU 1022-2O4BS**

**OH**

**Design: OH**

# Survey Report - Geographic

**12 March, 2012**

Anadarko
Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Project** Uintah County, UT UTM12

| | | | |
|---|---|---|---|
| **Map System:** | Universal Transverse Mercator (US Survey Feet) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 - Western US | | |
| **Map Zone:** | Zone 12N (114 W to 108 W) | | |

**Site** NBU 1022-2P PAD, SECTION 2 T10S R22E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,519,620.58 usft | **Latitude:** | 39.971339 |
| **From:** | Lat/Long | **Easting:** | 2,088,208.52 usft | **Longitude:** | -109.401781 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 1.03 ° |

**Well** NBU 1022-2O4BS, 221 FSL 1392 FEL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 14,519,618.96 usft | **Latitude:** | 39.971337 |
| | **+E/-W** | 0.00 ft | **Easting:** | 2,088,158.37 usft | **Longitude:** | -109.401960 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 5,092.00 ft |

**Wellbore** OH

| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
|---|---|---|---|---|---|
| | IGRF2010 | 07/21/11 | 11.02 | 65.86 | 52,316 |

**Design** OH

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | 1.0 | **Phase:** | ACTUAL | **Tie On Depth:** | 0.00 |

| **Vertical Section:** | **Depth From (TVD) (ft)** | **+N/-S (ft)** | **+E/-W (ft)** | **Direction (°)** |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 296.63 |

**Survey Program** **Date** 03/12/12

| **From (ft)** | **To (ft)** | **Survey (Wellbore)** | **Tool Name** | **Description** |
|---|---|---|---|---|
| 21.00 | 2,249.00 | Survey #1 WFT MWD SURFACE (OH) | MWD | MWD - Standard |
| 2,298.00 | 9,831.00 | Survey #2 SDI MWD PRODUCTION (OH) | MWD SDI | MWD - Standard ver 1.0.1 |

**Survey**

| **Measured Depth (ft)** | **Inclination (°)** | **Azimuth (°)** | **Vertical Depth (ft)** | **+N/-S (ft)** | **+E/-W (ft)** | **Map Northing (usft)** | **Map Easting (usft)** | **Latitude** | **Longitude** |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14,519,618.96 | 2,088,158.37 | 39.971337 | -109.401960 |
| 21.00 | 0.00 | 0.00 | 21.00 | 0.00 | 0.00 | 14,519,618.96 | 2,088,158.37 | 39.971337 | -109.401960 |
| 187.00 | 0.28 | 177.21 | 187.00 | -0.41 | 0.02 | 14,519,618.55 | 2,088,158.39 | 39.971336 | -109.401960 |
| **FIRST WFT MWD SURFACE SURVEY** | | | | | | | | | |
| 272.00 | 0.93 | 251.61 | 271.99 | -0.83 | -0.62 | 14,519,618.11 | 2,088,157.76 | 39.971335 | -109.401963 |
| 357.00 | 2.33 | 271.77 | 356.96 | -0.99 | -3.01 | 14,519,617.91 | 2,088,155.38 | 39.971334 | -109.401971 |
| 447.00 | 3.13 | 293.99 | 446.86 | 0.06 | -7.08 | 14,519,618.89 | 2,088,151.29 | 39.971337 | -109.401986 |
| 537.00 | 3.56 | 307.49 | 536.71 | 2.76 | -11.54 | 14,519,621.51 | 2,088,146.78 | 39.971345 | -109.402001 |
| 627.00 | 4.56 | 308.24 | 626.48 | 6.68 | -16.57 | 14,519,625.33 | 2,088,141.68 | 39.971355 | -109.402019 |
| 717.00 | 5.94 | 305.87 | 716.10 | 11.62 | -23.15 | 14,519,630.16 | 2,088,135.01 | 39.971369 | -109.402043 |
| 807.00 | 6.88 | 303.37 | 805.54 | 17.31 | -31.43 | 14,519,635.70 | 2,088,126.63 | 39.971385 | -109.402072 |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 897.00 | 8.19 | 301.49 | 894.76 | 23.63 | -41.40 | 14,519,641.84 | 2,088,116.55 | 39.971402 | -109.402108 |
| 987.00 | 9.63 | 301.49 | 983.67 | 30.91 | -53.28 | 14,519,648.90 | 2,088,104.54 | 39.971422 | -109.402150 |
| 1,077.00 | 10.94 | 301.87 | 1,072.22 | 39.35 | -66.96 | 14,519,657.10 | 2,088,090.71 | 39.971445 | -109.402199 |
| 1,167.00 | 11.38 | 301.87 | 1,160.52 | 48.55 | -81.75 | 14,519,666.03 | 2,088,075.76 | 39.971470 | -109.402252 |
| 1,257.00 | 12.50 | 302.37 | 1,248.57 | 58.45 | -97.52 | 14,519,675.65 | 2,088,059.82 | 39.971498 | -109.402308 |
| 1,347.00 | 12.69 | 299.62 | 1,336.41 | 68.55 | -114.34 | 14,519,685.45 | 2,088,042.82 | 39.971525 | -109.402368 |
| 1,437.00 | 12.69 | 297.12 | 1,424.21 | 77.94 | -131.73 | 14,519,694.52 | 2,088,025.26 | 39.971551 | -109.402430 |
| 1,527.00 | 12.75 | 295.99 | 1,512.00 | 86.80 | -149.46 | 14,519,703.06 | 2,088,007.38 | 39.971575 | -109.402494 |
| 1,617.00 | 13.50 | 295.12 | 1,599.65 | 95.61 | -167.89 | 14,519,711.54 | 2,087,988.78 | 39.971600 | -109.402559 |
| 1,707.00 | 12.44 | 292.99 | 1,687.35 | 103.86 | -186.33 | 14,519,719.46 | 2,087,970.20 | 39.971622 | -109.402625 |
| 1,797.00 | 11.81 | 291.87 | 1,775.34 | 111.08 | -203.80 | 14,519,726.36 | 2,087,952.61 | 39.971642 | -109.402688 |
| 1,887.00 | 11.50 | 291.87 | 1,863.49 | 117.85 | -220.67 | 14,519,732.83 | 2,087,935.61 | 39.971661 | -109.402748 |
| 1,977.00 | 11.50 | 294.99 | 1,951.68 | 124.98 | -237.13 | 14,519,739.67 | 2,087,919.03 | 39.971680 | -109.402806 |
| 2,067.00 | 11.19 | 290.24 | 2,039.92 | 131.79 | -253.46 | 14,519,746.18 | 2,087,902.59 | 39.971699 | -109.402865 |
| 2,157.00 | 10.31 | 289.24 | 2,128.34 | 137.47 | -269.26 | 14,519,751.57 | 2,087,886.69 | 39.971714 | -109.402921 |
| 2,249.00 | 11.67 | 289.74 | 2,218.65 | 143.32 | -285.79 | 14,519,757.13 | 2,087,870.06 | 39.971731 | -109.402980 |
| **LAST WFT MWD SURFACE SURVEY** | | | | | | | | | |
| 2,298.00 | 11.61 | 287.97 | 2,266.65 | 146.52 | -295.14 | 14,519,760.16 | 2,087,860.65 | 39.971739 | -109.403013 |
| **FIRST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 2,392.00 | 14.60 | 296.58 | 2,358.20 | 154.74 | -314.74 | 14,519,768.03 | 2,087,840.90 | 39.971762 | -109.403083 |
| 2,487.00 | 14.60 | 304.05 | 2,450.14 | 166.80 | -335.37 | 14,519,779.72 | 2,087,820.06 | 39.971795 | -109.403157 |
| 2,581.00 | 13.54 | 300.27 | 2,541.32 | 178.98 | -354.69 | 14,519,791.55 | 2,087,800.52 | 39.971828 | -109.403226 |
| 2,675.00 | 13.81 | 303.97 | 2,632.66 | 190.80 | -373.50 | 14,519,803.03 | 2,087,781.51 | 39.971861 | -109.403293 |
| 2,770.00 | 13.10 | 300.89 | 2,725.05 | 202.66 | -392.14 | 14,519,814.56 | 2,087,762.65 | 39.971893 | -109.403360 |
| 2,864.00 | 12.66 | 292.28 | 2,816.69 | 212.04 | -410.82 | 14,519,823.60 | 2,087,743.81 | 39.971919 | -109.403426 |
| 2,958.00 | 9.15 | 287.79 | 2,908.98 | 218.23 | -427.47 | 14,519,829.49 | 2,087,727.05 | 39.971936 | -109.403486 |
| 3,053.00 | 5.28 | 297.99 | 3,003.22 | 222.59 | -438.53 | 14,519,833.65 | 2,087,715.92 | 39.971948 | -109.403525 |
| 3,147.00 | 2.46 | 307.83 | 3,096.99 | 225.86 | -443.94 | 14,519,836.82 | 2,087,710.45 | 39.971957 | -109.403544 |
| 3,242.00 | 0.88 | 97.95 | 3,191.97 | 227.01 | -444.83 | 14,519,837.95 | 2,087,709.54 | 39.971960 | -109.403548 |
| 3,336.00 | 0.79 | 146.55 | 3,285.96 | 226.37 | -443.76 | 14,519,837.33 | 2,087,710.62 | 39.971959 | -109.403544 |
| 3,430.00 | 0.79 | 152.53 | 3,379.95 | 225.25 | -443.10 | 14,519,836.23 | 2,087,711.30 | 39.971955 | -109.403541 |
| 3,525.00 | 1.32 | 150.51 | 3,474.93 | 223.72 | -442.26 | 14,519,834.71 | 2,087,712.17 | 39.971951 | -109.403538 |
| 3,619.00 | 0.26 | 236.99 | 3,568.93 | 222.66 | -441.91 | 14,519,833.66 | 2,087,712.54 | 39.971948 | -109.403537 |
| 3,713.00 | 0.98 | 227.13 | 3,662.92 | 222.00 | -442.67 | 14,519,832.98 | 2,087,711.78 | 39.971947 | -109.403540 |
| 3,808.00 | 1.67 | 166.77 | 3,757.90 | 220.09 | -442.95 | 14,519,831.08 | 2,087,711.54 | 39.971941 | -109.403541 |
| 3,902.00 | 1.67 | 158.33 | 3,851.86 | 217.49 | -442.13 | 14,519,828.49 | 2,087,712.41 | 39.971934 | -109.403538 |
| 3,997.00 | 1.76 | 157.19 | 3,946.81 | 214.86 | -441.06 | 14,519,825.87 | 2,087,713.53 | 39.971927 | -109.403534 |
| 4,091.00 | 1.67 | 162.64 | 4,040.77 | 212.22 | -440.09 | 14,519,823.25 | 2,087,714.54 | 39.971920 | -109.403531 |
| 4,186.00 | 1.85 | 161.23 | 4,135.73 | 209.45 | -439.18 | 14,519,820.50 | 2,087,715.50 | 39.971912 | -109.403527 |
| 4,280.00 | 0.35 | 172.74 | 4,229.71 | 207.72 | -438.66 | 14,519,818.79 | 2,087,716.06 | 39.971907 | -109.403526 |
| 4,374.00 | 0.44 | 165.10 | 4,323.71 | 207.09 | -438.53 | 14,519,818.15 | 2,087,716.20 | 39.971906 | -109.403525 |
| 4,469.00 | 0.70 | 169.23 | 4,418.70 | 206.17 | -438.33 | 14,519,817.24 | 2,087,716.42 | 39.971903 | -109.403524 |
| 4,563.00 | 0.97 | 178.02 | 4,512.69 | 204.81 | -438.19 | 14,519,815.88 | 2,087,716.57 | 39.971899 | -109.403524 |
| 4,657.00 | 1.41 | 132.75 | 4,606.67 | 203.23 | -437.31 | 14,519,814.31 | 2,087,717.48 | 39.971895 | -109.403521 |
| 4,752.00 | 1.67 | 122.56 | 4,701.64 | 201.69 | -435.29 | 14,519,812.81 | 2,087,719.53 | 39.971891 | -109.403514 |
| 4,846.00 | 1.14 | 45.30 | 4,795.62 | 201.61 | -433.47 | 14,519,812.77 | 2,087,721.35 | 39.971891 | -109.403507 |
| 4,940.00 | 0.79 | 48.56 | 4,889.60 | 202.70 | -432.32 | 14,519,813.87 | 2,087,722.48 | 39.971894 | -109.403503 |
| 5,035.00 | 1.93 | 17.79 | 4,984.58 | 204.65 | -431.34 | 14,519,815.85 | 2,087,723.43 | 39.971899 | -109.403499 |
| 5,129.00 | 1.85 | 15.24 | 5,078.52 | 207.63 | -430.46 | 14,519,818.83 | 2,087,724.26 | 39.971907 | -109.403496 |
| 5,223.00 | 1.49 | 28.52 | 5,172.49 | 210.16 | -429.48 | 14,519,821.39 | 2,087,725.19 | 39.971914 | -109.403493 |
| 5,318.00 | 1.32 | 17.18 | 5,267.46 | 212.29 | -428.56 | 14,519,823.53 | 2,087,726.07 | 39.971920 | -109.403490 |
| 5,412.00 | 1.14 | 105.42 | 5,361.44 | 213.08 | -427.34 | 14,519,824.34 | 2,087,727.27 | 39.971922 | -109.403485 |
| 5,506.00 | 1.06 | 124.84 | 5,455.42 | 212.33 | -425.73 | 14,519,823.63 | 2,087,728.90 | 39.971920 | -109.403479 |
| 5,601.00 | 1.32 | 121.42 | 5,550.40 | 211.26 | -424.07 | 14,519,822.58 | 2,087,730.58 | 39.971917 | -109.403474 |
| 5,695.00 | 1.67 | 131.96 | 5,644.37 | 209.78 | -422.13 | 14,519,821.14 | 2,087,732.55 | 39.971913 | -109.403467 |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 5,790.00 | 0.35 | 85.56 | 5,739.36 | 208.88 | -420.81 | 14,519,820.26 | 2,087,733.88 | 39.971911 | -109.403462 |
| 5,884.00 | 0.53 | 124.05 | 5,833.35 | 208.66 | -420.16 | 14,519,820.05 | 2,087,734.53 | 39.971910 | -109.403460 |
| 5,978.00 | 0.51 | 115.92 | 5,927.35 | 208.23 | -419.43 | 14,519,819.64 | 2,087,735.27 | 39.971909 | -109.403457 |
| 6,073.00 | 1.32 | 279.36 | 6,022.34 | 208.22 | -420.13 | 14,519,819.62 | 2,087,734.58 | 39.971909 | -109.403459 |
| 6,167.00 | 1.09 | 272.15 | 6,116.32 | 208.43 | -422.09 | 14,519,819.79 | 2,087,732.61 | 39.971909 | -109.403466 |
| 6,261.00 | 0.97 | 257.21 | 6,210.31 | 208.29 | -423.76 | 14,519,819.62 | 2,087,730.94 | 39.971909 | -109.403472 |
| 6,356.00 | 0.70 | 239.81 | 6,305.30 | 207.82 | -425.04 | 14,519,819.13 | 2,087,729.67 | 39.971908 | -109.403477 |
| 6,450.00 | 0.79 | 233.04 | 6,399.29 | 207.14 | -426.06 | 14,519,818.43 | 2,087,728.66 | 39.971906 | -109.403481 |
| 6,544.00 | 0.79 | 86.96 | 6,493.29 | 206.79 | -425.93 | 14,519,818.08 | 2,087,728.80 | 39.971905 | -109.403480 |
| 6,639.00 | 0.88 | 3.56 | 6,588.28 | 207.55 | -425.23 | 14,519,818.85 | 2,087,729.49 | 39.971907 | -109.403478 |
| 6,733.00 | 0.70 | 38.45 | 6,682.27 | 208.72 | -424.83 | 14,519,820.03 | 2,087,729.87 | 39.971910 | -109.403476 |
| 6,828.00 | 0.26 | 81.25 | 6,777.27 | 209.21 | -424.25 | 14,519,820.53 | 2,087,730.43 | 39.971911 | -109.403474 |
| 6,922.00 | 0.53 | 112.98 | 6,871.27 | 209.07 | -423.64 | 14,519,820.40 | 2,087,731.05 | 39.971911 | -109.403472 |
| 7,016.00 | 0.35 | 307.48 | 6,965.26 | 209.08 | -423.47 | 14,519,820.41 | 2,087,731.22 | 39.971911 | -109.403471 |
| 7,111.00 | 0.26 | 6.19 | 7,060.26 | 209.47 | -423.68 | 14,519,820.80 | 2,087,731.00 | 39.971912 | -109.403472 |
| 7,205.00 | 0.35 | 104.01 | 7,154.26 | 209.61 | -423.38 | 14,519,820.94 | 2,087,731.30 | 39.971913 | -109.403471 |
| 7,299.00 | 0.70 | 129.15 | 7,248.26 | 209.18 | -422.65 | 14,519,820.52 | 2,087,732.03 | 39.971911 | -109.403468 |
| 7,394.00 | 0.70 | 338.59 | 7,343.26 | 209.35 | -422.41 | 14,519,820.70 | 2,087,732.27 | 39.971912 | -109.403468 |
| 7,488.00 | 0.18 | 99.09 | 7,437.25 | 209.86 | -422.48 | 14,519,821.21 | 2,087,732.20 | 39.971913 | -109.403468 |
| 7,582.00 | 0.44 | 136.27 | 7,531.25 | 209.58 | -422.08 | 14,519,820.94 | 2,087,732.60 | 39.971912 | -109.403466 |
| 7,677.00 | 0.79 | 132.14 | 7,626.25 | 208.88 | -421.34 | 14,519,820.25 | 2,087,733.35 | 39.971911 | -109.403464 |
| 7,771.00 | 1.32 | 114.82 | 7,720.23 | 207.99 | -419.88 | 14,519,819.38 | 2,087,734.83 | 39.971908 | -109.403459 |
| 7,865.00 | 0.53 | 110.43 | 7,814.22 | 207.38 | -418.49 | 14,519,818.80 | 2,087,736.23 | 39.971906 | -109.403454 |
| 7,960.00 | 0.35 | 300.10 | 7,909.22 | 207.37 | -418.33 | 14,519,818.80 | 2,087,736.39 | 39.971906 | -109.403453 |
| 8,054.00 | 0.09 | 11.03 | 8,003.22 | 207.59 | -418.56 | 14,519,819.01 | 2,087,736.15 | 39.971907 | -109.403454 |
| 8,148.00 | 0.44 | 96.54 | 8,097.21 | 207.62 | -418.19 | 14,519,819.05 | 2,087,736.52 | 39.971907 | -109.403453 |
| 8,243.00 | 0.70 | 90.48 | 8,192.21 | 207.57 | -417.25 | 14,519,819.02 | 2,087,737.46 | 39.971907 | -109.403449 |
| 8,337.00 | 0.88 | 119.40 | 8,286.20 | 207.21 | -416.05 | 14,519,818.68 | 2,087,738.67 | 39.971906 | -109.403445 |
| 8,431.00 | 1.23 | 116.93 | 8,380.18 | 206.40 | -414.52 | 14,519,817.90 | 2,087,740.22 | 39.971904 | -109.403439 |
| 8,526.00 | 1.14 | 131.52 | 8,475.16 | 205.31 | -412.90 | 14,519,816.84 | 2,087,741.85 | 39.971901 | -109.403434 |
| 8,620.00 | 1.58 | 144.71 | 8,569.14 | 203.64 | -411.45 | 14,519,815.19 | 2,087,743.33 | 39.971896 | -109.403429 |
| 8,714.00 | 1.58 | 149.81 | 8,663.10 | 201.46 | -410.05 | 14,519,813.03 | 2,087,744.77 | 39.971890 | -109.403424 |
| 8,809.00 | 1.93 | 144.53 | 8,758.06 | 199.02 | -408.46 | 14,519,810.63 | 2,087,746.40 | 39.971883 | -109.403418 |
| 8,903.00 | 1.93 | 141.90 | 8,852.00 | 196.49 | -406.57 | 14,519,808.13 | 2,087,748.34 | 39.971877 | -109.403411 |
| 8,997.00 | 1.58 | 139.17 | 8,945.96 | 194.26 | -404.75 | 14,519,805.93 | 2,087,750.20 | 39.971870 | -109.403405 |
| 9,092.00 | 1.93 | 143.92 | 9,040.92 | 191.98 | -402.95 | 14,519,803.68 | 2,087,752.04 | 39.971864 | -109.403398 |
| 9,186.00 | 2.15 | 145.71 | 9,134.86 | 189.24 | -401.02 | 14,519,800.98 | 2,087,754.02 | 39.971857 | -109.403391 |
| 9,281.00 | 2.11 | 149.01 | 9,229.79 | 186.27 | -399.12 | 14,519,798.04 | 2,087,755.98 | 39.971848 | -109.403384 |
| 9,375.00 | 2.20 | 138.99 | 9,323.72 | 183.43 | -397.04 | 14,519,795.24 | 2,087,758.10 | 39.971841 | -109.403377 |
| 9,470.00 | 2.20 | 143.65 | 9,418.65 | 180.58 | -394.76 | 14,519,792.43 | 2,087,760.43 | 39.971833 | -109.403369 |
| 9,564.00 | 2.02 | 141.02 | 9,512.59 | 177.84 | -392.65 | 14,519,789.73 | 2,087,762.59 | 39.971825 | -109.403361 |
| 9,659.00 | 2.37 | 147.78 | 9,607.52 | 174.88 | -390.55 | 14,519,786.81 | 2,087,764.74 | 39.971817 | -109.403354 |
| 9,778.00 | 2.46 | 140.75 | 9,726.42 | 170.82 | -387.63 | 14,519,782.80 | 2,087,767.74 | 39.971806 | -109.403343 |
| **LAST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 9,831.00 | 2.46 | 140.75 | 9,779.37 | 169.06 | -386.19 | 14,519,781.06 | 2,087,769.21 | 39.971801 | -109.403338 |
| **SDI PROJECTION TO BIT** | | | | | | | | | |

| | | | |
|---|---|---|---|
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **Local Co-ordinate Reference:** | Well NBU 1022-2O4BS |
| **Project:** | Uintah County, UT UTM12 | **TVD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Site:** | NBU 1022-2P PAD | **MD Reference:** | GL 5092' & KB 21' @ 5113.00ft (HP 311) |
| **Well:** | NBU 1022-2O4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Design Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 187.00 | 187.00 | -0.41 | 0.02 | FIRST WFT MWD SURFACE SURVEY |
| 2,249.00 | 2,218.65 | 143.32 | -285.79 | LAST WFT MWD SURFACE SURVEY |
| 2,298.00 | 2,266.65 | 146.52 | -295.14 | FIRST SDI MWD PRODUCTION SURVEY |
| 9,778.00 | 9,726.42 | 170.82 | -387.63 | LAST SDI MWD PRODUCTION SURVEY |
| 9,831.00 | 9,779.37 | 169.06 | -386.19 | SDI PROJECTION TO BIT |

Checked By: _____ Approved By: _____ Date: _____